Thesis submitted to the

Tamil Nadu Dr.M.G.R.Medical University,

Chennai.

For the degree of

Doctorate of Medicine (DM)

In

Clinical Haematology

By:

Dr. Nemani Sandeep Anil

For the year: August 2015

Department of Clinical Haematology

Christian Medical College, Vellore.

Tamil Nadu, India.

CLINICOPATHOLOGICAL CORRELATION AND OUTCOME IN PERIPHERAL T CELL LYMPHOMAS (PTCL) - A RETROSPECTIVE STUDY FROM A TERTIARY CENTER IN INDIA.

CERTIFICATE

This is to certify that this thesis titled –Clinicopathological correlation and outcome in peripheral T cell lymphomas (PTCL) - A retrospective study from a tertiary center in India**,**" is a bonafide work of the candidate, Dr. Nemani Sandeep Anil, during the period from August 2012 to July 2015 in partial fulfilment, towards the award of degree of Doctorate of Medicine (higher specialty) in Clinical Haematology for the examinations to be conducted by the Dr.M.G.R Medical University in August 2015.

Dr. Auro Viswabandya, M.D., D.M.,

(Thesis Guide)

Professor,

Department of Clinical Haematology,

Christian Medical College, Vellore.

Dr. Nemani Sandeep Anil

(Candidate)

Department of Clinical Haematology,

Christian Medical College, Vellore.

Dr. Vikram Mathews, MD, DM.,

Professor & Head of the Department,

Department of Clinical Haematology,

Christian Medical College, Vellore.

Dr. Alfred Daniel

Principal

Christian Medical College, Vellore.

ACKNOWLEDGEMENT

(In the name of God, Most Gracious; Most Merciful)

Foremost my gratitude to the Almighty, with whose blessings, this work has been possible. I am heartily thankful to my guide and Professor Dr. Auro Viswabandya, whose encouragement, guidance and support from the initial to the final level made this work possible. I take this opportunity to express my gratitude to my teachers Dr. Alok Srivastava, Dr. Vikram Mathews, Dr. Biju George, Dr. Aby Abraham, Dr. Marie Therese Manipadam, Dr. Abhijeet Ganpule, Dr. Fouzia N.A, Dr. Anu Korula and Dr. Punit Jain for their expert opinion and guidance. I would like to thank my father Mr. Anil Nemani, my mother Mrs. Usha Nemani, my brother Master Kapil and my wife Dr. Bhumi whose unconditional love and sacrifice has been my support at all times. I am indebted to all my colleagues and friends in Clinical Haematology for their constant support and encouragement. Last but not least, I offer my regards and gratitude to all the patients and their families whose data has been analyzed in this study.

CONTENTS

Introduction

The classification of NHLs was evolved over several decades starting from first attempt made by Rappaport et al in 1950s. Later in 1970s for the first time it was noted that NHL can be of T or B cell origin which made the origin of immunologically based classifications of NHL by Lukes and Collins and the Kiel classification. In 1982 working formulation was proposed in an attempt to unify all the classifications existing at that time. Later in 1994 a unified classification was developed which was the cornerstone of the current WHO classification, the latest edition of which was in 2008(1, 2). Peripheral T cell lymphomas (PTCL) are heterogeneous group of non Hodgkin lymphomas (NHL) which are of mature T cell origin (3). They account for only 10-15% of all lymphoid malignancies (4). In a study published from India T cell lymphomas account for 20.2% of all NHLs (5). They are less common in western world while maximum incidence is seen in Asia (6). International peripheral T cell lymphoma project (IPTCLP) is the largest study done by Vose et al to study the pathological findings and outcomes of this group of patients (2). The study was performed in 22 centres worldwide by enrolling 1,314 cases of PTCLs. Most common subtype was found to be peripheral T cell lymphoma-Not otherwise specified (PTCL-NOS) (25.9%) followed by angiommunoblastic T cell lymphoma (AITL) (18.5%), third most common was NK/T cell lymphoma (NKTCL) (10.4%) followed by adult T cell leukemia-lymphoma (ATLL) (9.6%). Next in order of frequency was ALK positive anaplastic large cell lymphoma (ALCL) (6.6%) then ALK negative ALCL (5.5%) and enteropathy associated T cell lymphoma (EATL) (4.7%). International prognostic index was found to be useful for prognostication of PTCL as that for B cell NHLs. It was found that certain PTCLs like NKTCL are associated with poor outcome even with low IPI (2). Various new scoring systems are developed either subtype specific or nonspecific with better risk categorisation and balanced distribution in all risk

categories(7). PTCLs are treated with treatment regimens that are studied on B cell neoplasms. It was shown that CHOP based regimens have uniformly shown poor results (except ALK positive ALCL) (8). In IPTCLP addition of anthracyclines has shown no benefit in outcome in both PTCL-NOS and AITL (2). New molecular signatures are added by gene expression profiling, which are adding to the understanding of these diverse group of disorders(8). With better understanding of disease biology new treatment targets are being developed and are presently studied in clinical trials. Over the years with new avenues in understanding of disease biology and development of newer treatment options the outlook towards PTCL which was referred to as _poor step child‘ of lymphomas (3), is changing and the future seems to be hopeful for improved outcome in this universally fatal group of disorders. The present study is to study the incidence of various PTCLs in single centre from India and to study the outcomes for the patients who underwent treatment from January 2007 to December 2012.

Review of Literature

A) Background-

Peripheral T-cell lymphomas (PTCLs), is a heterogeneous group of non Hodgkin lymphoma (NHL) originating from T-cells. It is a distinct group of haematolymphoid malignancy, encompassing various diverse subgroups, distinct from more common cutaneous T cell lymphomas (CTCLs). Most of the PTCLs, for the most part, carry poor prognosis except few subtypes. Overall T cell lymphomas account for 10-15 % of all lymphoid malignancies(4). Treatment advances in PTCLs is very slow due to various factors like overall aggressive nature of the disease and rarity of the condition leading to ineffective clinical trials in this group of patients(9). By and large, treatment for these patients is extrapolated from therapies of B cell lymphomas which are more common, but this approach is not very effective adding to the poor overall response in this group of patients.

B) Classification-

Latest classification of mature T cell lymphomas is provided by WHO in 2008. Table-1 shows the same.

WHO Classification of the Mature T-Cell Lymphomas (1). (**Table 1**)

Leukemic	T-cell prolymphocytic leukemia
	T-cell large granular lymphocytic leukemia

	Aggressive NK-cell leukemia
	Indolent large granular NK-cell lymphoproliferative disorder (provisional)
	Adult T-cell leukemia (HTLV-1, ATL)
Extranodal	Extranodal NK/T-cell lymphoma, nasal type
	Enteropathy-associated T-cell lymphoma (EATL)
	Hepatosplenic T-cell lymphoma
	Subcutaneous panniculitis-like T-cell lymphoma (αβ T-cell lineage only)
	Primary cutaneous γδ-T-cell lymphoma
Nodal	ALCL, systemic or cutaneous
	ALCL:ALK positive [t(2;5)]
	ALCL:ALK negative (provisional)
	PTCL-NOS

	Angioimmunoblastic T cell Lymphoma (AITL)
Cutaneous	Mycosis fungoides/Sézary syndrome
	Primary cutaneous $CD30^+$ T-cell LPD, LYP and primary cutaneous ALCL
	Primary cutaneous $CD4^+$ small/medium T-cell lymphoma (provisional)
	Primary cutaneous $CD8^+$ aggressive epidermotropic cytoxic T-cell lymphoma (provisional)
Other	Systemic EBV-positive T-cell LPD of childhood
	Hydroa vacciniforme–like lymphoma

(ALCL, Anaplastic large cell lymphoma; ATL, adult T-cell leukemia/lymphoma; EBV,Epstein-Barr virus; HTLV-1, human T-lymphotropic virus-1; LPD, lymphoproliferative disease; LYP, lymphomatoid papulosis; NK, natural killer; NOS, not otherwise specified; PTCL, peripheral T-cell lymphoma; WHO, World Health Organization.)

C) Epidemiology-

The incidence of PTCL is less than 1 case per 100 000 people in the United States (10). As per International PTCL Project, the most common subtypes are the nodal T-cell lymphomas. As per western data PTCL account for 10-15% of lymphoid

malignancies(4). A study published from India, had shown a higher incidence of PTCL (20.2%) of all NHLs (5). Though it was higher than western studies, but incidences were much higher in far eastern studies like from Korea (25%) and China (30%) (11, 12). The most common subtype is PTCL- Not otherwise specified (25.9%) followed by Angioimmunoblastic T cell lymphoma (AITL) (18.5%) and NK/T- cell lymphoma (10.4). ALK positive Anaplastic large cell lymphomas (ALCL) (6.6%), ALK negative ALCL (5.5%), enteropathy associated T-cell lymphomas (EATL) (4.7%), hepatosplenic T-cell lymphomas (HSTL) (1.4%), and panniculitis-like T-cell lymphomas (0.9%) are rare (2). A regional difference in frequency exists in common subtypes. PTCL-NOS being more common in North America then European and Asian countries. AITL is common in Europe than in Asia or North America. Likewise, ALK Positive ALCL is common in North America; ALK negative ALCL is common in Europe; and NK-/T-cell lymphomas and ATL are more common in Asia(2). They are commonly found in males, with majority with median age above 60 years (Except few subtypes like ALK positive ALCL, HSTL with median age in thirties (2).

D) Pathogenesis-

In T cell ontogeny, precursors origin in bone marrow, while maturation occurs in thymus. Cortical thymocytes have TdT and other precursor markers, which are variably seen in T cell acute lymphoblastic lymphoma/leukaemia (1). Medullary thymocytes can have expression of mature phenotype with either CD4 or CD8 expression and surface CD3 expression. Depending upon type of T cell receptor, mature T cells can be either αβ or γδ T cells. γδ T cells are less than 5% of total mature T cells, and usually home to splenic red pulp, intestinal and other epithelia. Lymphomas originating from γδ T cells cells usually involve these organs, and are

rare. Natural killer cells are important constituents of innate immunity with incomplete T cell receptor. They express CD2, CD7, CD16, CD56, cytoplasmic granule proteins, sometimes CD8 but not CD3. Lymphomas originating from these cells of innate immunity usually have extranodal presentation. Lymphomas of innate immunity like hepatosplenic T cell lymphoma, intestinal lymphomas and cutaneous γδ T cell lymphoma have granzyme M expression as they are linked to innate immunity.

T cell lymphomas of adaptive immunity are mainly seen in adults and are of nodal origin. Follicular helper T cells (TFH) are a subset of CD4 cells seen in germinal center. They produces chemokine CXCL13 and its receptor CXCR5. The function of CXCL13 is induction and proliferation of follicular dendritic cells (FDC). Angioimmunoblastic T-cell lymphoma shows increased CXCL13 production, which is responsible for polyclonal hypergammaglobulinaemia and expansion and proliferation of B-cells and CD21+FDC's within the lymph node. Tregs is another type of CD4 cells which function in preventing autoimmunity and are responsible for suppressing immune response. Adult T-cell leukaemia/lymphoma (ATLL), has been linked to Treg cells (CD25 and FoxP3 positive). This explains why this malignancy is associated with marked immunosuppression (1).

E) Diagnosis-

Major system to classify PTCL till date is by WHO classification, 2008 (1). Clear terms and definitions for various subtypes are given. Reproducibility of diagnosis by haematopathologists for PTCL is not equal to that for B cell NHL. Even with the use

of immunophenotyping agreement in the diagnosis amongst pathologists varied from 97% for ALK positive ALCL to 72% in case of HSTL and only 75% times in common subtype i.e., PTCL-NOS (2). Molecular and genetic tests have not much helped in diagnosis of PTCL as for the B cell NHL. Except for t(2;5)(p23;q35), characteristic of ALK positive ALCL no other cytogenetic or molecular marker has diagnostic importance. Gene expression profiling can be helpful in better characterisation of various subtypes by specific gene signature. Its major utility will be in further subtyping of large PTCL- NOS group (13).

F) Staging-

Ann Arbor system of staging PTCL as it is used in cases of B cell lymphomas (14, 15) (See appendix-1). As for other lymphomas staging is done by imaging and bone marrow evaluation. MRI brain and CSF evaluation needs to be done depending upon CNS symptoms and is not routinely recommended (8). Detailed staging with investigations like LDH, beta2-microglobulin, complete blood count, calcium, uric acid, hepatic and renal parameters helps in better delineation of disease extent and for prognostication. Utility of positron emission tomography (PET) scans for staging in patients with PTCLs has not been recommended for routine evaluation though majority of PTCLs are PET avid (8). It is noted that maximum SUV (standard uptake value) is lower in PTCL than B cell lymphomas and it is lower in extra nodal PTCL than in nodal subtypes (16). Recently the Ann Arbor system of staging is modified and proposed classification is called as Lugano classification for staging of Hodgkin and Non Hodgkin lymphomas (17). As per this classification, subscripts like A, B and X are no longer required in staging. Instead actual size of bulk can be mentioned (See appendix-2).

G) Prognostication-

Prognostic categorisation is done by traditional international prognostic index (IPI) as for B cell NHLs (18). Majority of PTCLs lie in intermediate and high risk category when risk stratified by IPI making it less useful in this group of patients (19). Few of the PTCLs like EATL and Extranodal NK/T-cell lymphoma, nasal type have lower IPI with poor outcome. Though IPI can risk stratify both B cell and T cell lymphomas well, various studies questioned the prognostic significance of IPI in PTCLs on multivariate analysis (20, 21). Various prognostic indices are developed over different times for PTCLs to address this issue. Prognostic index for T cell lymphoma (PIT) (20) was developed by Intergruppo Italiano Linfomi for PTCL- Unspecified group and subsequently modified by the same group by inclusion of Ki-67 after finding its prognostic significance on multivariate analysis (mPIT) (21). The score proposed by international peripheral T cell lymphoma project (IPTCLP) was found to be better score for overall survival (OS) on multivariate analysis than both PIT and mPIT in one of the studies (7). A score recently proposed specifically for AITL (PIAI) having two risk groups with significant difference in OS (22). Considering imbalance of distribution in NK T cell lymphoma prognostic categories by the use of IPI, new score (NKPI) was developed by the Korean group which is not only better for survival prediction but also showed balanced division of all the patients in all risk categories. 27% in group 1, 31% in group 2, 20% in group 3 and 22% in group 4, whereas 81% of patients were in low or low-intermediate risks using IPI risk stratification in this group of patients(23).

Various indices used for prognostication of PTCL- (Table-2)

INDICES	PARAMETERS	RISK CATEGORIES (TOTAL SCORE) [5 yr Overall survival]	SUBTYPES OF PTCL APPLICABLE	REF.
International prognostic index **(IPI)**	1) Age > 60yrs 2) ECOG >1 3) Elevated LDH 4) Stage III/IV 5) EN >1	1- Low risk (0/1) [50%]* 2- Low intermediate risk (2) 3- High Intermediate risk (3) 4- High risk (4/5) [11%]*	All subtypes	(18)
Prognostic Index for T-cell lymphoma **(PIT)**	1) Age > 60yrs 2) ECOG >1 3) Elevated LDH 4) BM involved	1- Low risk (0) [62.3%]* 2- Low intermediate risk (1) [52.9%]* 3- High Intermediate risk(2) [32.9%]* 4- High risk(3/4) [18.3%]*	PTCL- U/ All subtypes	(20)

Modified Prognostic Index for T-cell lymphoma **(mPIT)**	1) Age > 60yrs 2) ECOG >1 3) Elevated LDH 4) Ki67 ≥80	1- Low risk (0/1) [63%] 2- Intermediate risk (2) [25%] 3- High risk (3/4) [12%]	PTCL-U/All subtypes	(21)
International peripheral T-cell lymphoma Project **(IPTCLP)**	1) Age > 60yrs 2) ECOG >1 3) Platelet count ≤ 1.5 x 10^9/L	1- Low risk (0) [58%] 2- Low intermediate risk (1) [15%] 3- High Intermediate risk(2) [5%] 4- High risk (3) [0%]	PTCL-NOS/ All subtypes	(7)
Prognostic index for AITL **(PIAI)**	1) Age > 60yrs 2) ECOG >1 3) Platelet count < 1.5 x 10^9/L. 4) EN >1 5) B symptoms	1- Low risk (0/1) [44%] 2- High risk (2-5) [24%]	AITL	(22)

NK/T cell lymphoma prognostic index **(NKPI)**	1) B Symptoms 2) Elevated LDH 3) Regional LN involved 4) Stage III/IV	1- Low risk (0) [87.2%] 2- Low intermediate risk (1) [64.2%] 3- High Intermediate risk(2) [34.4%] 4- High risk (3/4) [6.6%]	NK/T cell Lymphoma	(23)

*= 5 year overall survival for PTCL-NOS, PTCL-U= PTCL-unspecified (Now PTCL-NOS), ECOG- Eastern Cooperative Oncology Group prognostic score, EN-Extranodal involvement, BM- Bone marrow.

Biologic Prognostic Markers in PTCL (Table 3)

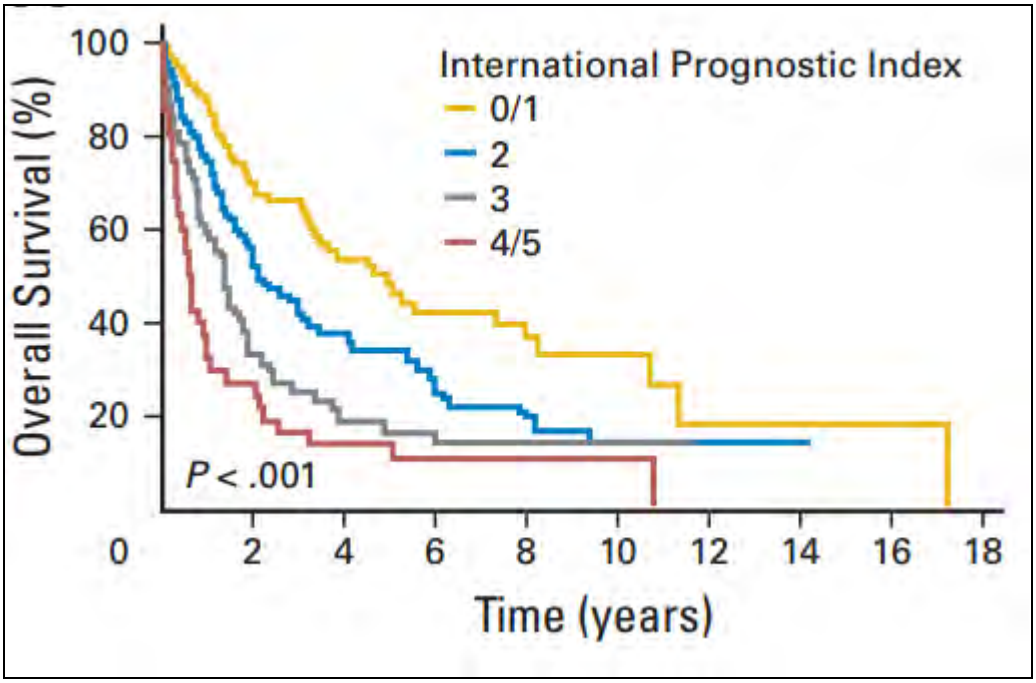
Prognostic marker	Outcome	Reference
ALK Positive	Good	(24)
CXCR3	Good	(25)
del(5q), del(10q), del(12q)	Good	(26)
NFkB gene signature	Good	(27)
EBV	Poor	(2)
Ki-67 ≥ 80%	Poor	(21)
% transformed cells >70%	Poor	(2)
Cytotoxic granules (TIA-1, granzyme B)	Poor	(28)
CCR4	Poor	(25)
Proliferation gene signature	Poor	(29)

H) Silent features of common PTCLs and their management-

1) Peripheral T cell Lymphoma Not otherwise specified-

Introduction-

PTCL- NOS is the most common type of PTCL in western world. It is a broad group of T cell neoplasms which are presently not characterised to any particular subtype according to WHO, 2008 classification (1). Median age of diagnosis is 60 years with male predominance, and usually present with nodal involvement but extranodal involvement is not uncommon (38% nodal, 49% both and 13% isolated extanodal disease) (2, 30). Enlargement of liver and spleen are seen in 17% and 24% of patients, respectively. Stage I, II, III, and IV, disease is in 14, 17, 26, and 43 percent of patients respectively. 20% cases show bone marrow involvement and leukemic presentation is rare (1). Approximately 25% cases show anemia and or thrombocytopenia (30). 35% cases show presence of B symptoms (30). 50% cases show elevated LDH. Few cases show pruritus, eosinophilia, and/or hemophagocytosis(31). Patients with low IPI scores (0/1) have 50% 5 year OS and only 33% failure free survival (FFS). While with high IPI score (4/5) patients it becomes 11% and 6% respectively (2) (Figure-1).



(Figure-1: Overall survival of patients with PTCL-NOS by IPI)(2)

Pathology-

The tumour cells have no characteristic morpholology and have variable mixture of small, intermediate and large cells(32). Varying admixture of cells including eosinophils, plasma cells, B cells, and epithelioid histiocytes can be seen. Lennert's lymphoma is the term for lymphoepithelioid cell lymphoma for cases rich in epithelioid histiocytes (33). Loss of mature T cell antigens like CD5 or CD7 is common. Though CD4 and CD8 is variably expressed majority are only CD4 positive. Majority are TCR alpha beta positive(1). No characteristic cytogenetic abnormality exists. Use of Gene expression profiling and other new molecular techniques are underway to sub classify these heterogeneous group of neoplasm (34).

Treatment-

Conventional chemotherapy used for treating aggressive NHLs (CHOP like chemotherapy) had showed disappointing results compared to ALK positive ALCL or B cell lymphomas. In view of paucity of clinical trials CHOP based chemotherapy remains the first choice even with inferior outcomes(8). Patients receiving anthracyclines verus no anthracyclines had shown no difference (see Fig-2) (2). CHOP chemotherapy was evaluated in various studies. It has resulted in complete response (CR) rates of 50% and 5 year OS of 30% (19, 35-37). Higher rate of treatment failure is due to relapse within 1-2 years of treatment (20, 38). To improve the outcomes various combinations of novel/chemotherapeutic agents have been tried with no major satisfactory results. CHOP plus Etoposide is found to be marginally more effective than CHOP alone (39). Various other combinations like CHOP with Alemtuzumab (40), CHOP with Denileukin diftitox (41), CHOP with Bortezomib (42). Intensive regimens like ACVBP (43), hyper-CVAD (35) and various combinations with Gemcitabine (44) were also studied. However, clear superiority of any of these could not be estabilised. So, outside clinical trial, CHOP based chemotherapy remains first line treatment of choice(8). Consolidation of the patients with autologous stem cell transplant (SCT) in CR 1 resulted in better response rates. The improved outcome with autologous SCT in CR1 settings as seen in few of the studies may be confounded because of not excluding ALCL (ALK postive) from the total cohort (45). Only 74% of the patients underwent autologous SCT in one of the studies due to progressive nature of disease (46). For relapse or refractory disease there is no consensus on the choice of salvage chemotherapy to be used. Various drugs like Gemcitabine,

Bortezomib, Praletrexate, Denilukin diftitox and Alemtuzumab are showing promise in combination with cytotoxic chemotherapy (8). Consolidation of relapse cases with either autologous or allogenic SCT still remains a matter of debate. Considering the poor overall outcome allogenic SCT can be considered in the relevant scenario. Treatment related mortality (TRM) with myeloablative conditioning regimens that is in the range of 30-50% in these patients, may be due to older age and multiple prior chemotherapies. Reduced intensity conditioning (RIC) could be effective but needs larger studies to validate its effectiveness in this group of patients (47).

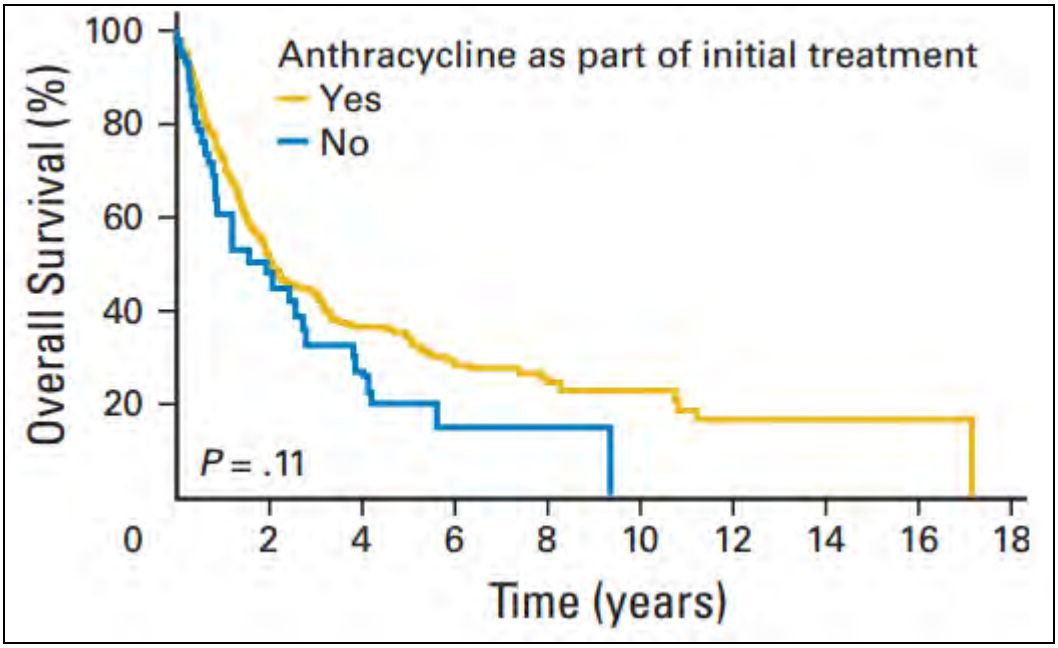


Figure- 2 OS of PTCL-NOS patients when treated with or without an anthracycline-based induction therapy (2).

2) Angio-immunoblastic T cell lymphoma-

Introduction-

Angioimmunoblastic lymphadenopathy with dysproteinemia was the first description given to this entity by Henry Rappaport in 1974 (48). Initially its malignant nature was uncertain and it was usually treated with prednisolone. Now it is a well known entity, and it is classified under mature T cell neoplasm(1). It accounts for 18.5% cases worldwide (2). Maximum incidence is from Europe (29%). As per international peripheral T cell lymphoma project (IPTCLP), 65 years is the median age of presentation with slight male preponderance (56% males) and 89% present with advanced stage (stage III/IV) (2). 76% cases had generalised lymphadenopathy, 35% had spenomegaly and 26% cases had hepatomegaly. 21% patients had skin rash, 13% had haemolytic anemia and 30% had hypergammaglobinemia. Bone marrow involvement was found in 28% cases and 60 % cases had elevated LDH (22). As per IPTCLP with 243 AITL cases, 5 year OS and FFS was found to be 33% and 18% respectively. Majority of AITL patients were found to be in advanced stage when risk stratified by IPI (79%) or by PIT (63%). Considering these limitations a new score which was developed by the same group (PIAI) which had divided patients in only 2 categories. Low risk group had 5 year OS of 44% while in high risk group it was 24% (P=0.0065) which was also found to be significant in independent cohort of 157 patients tested for validation (22, 49).

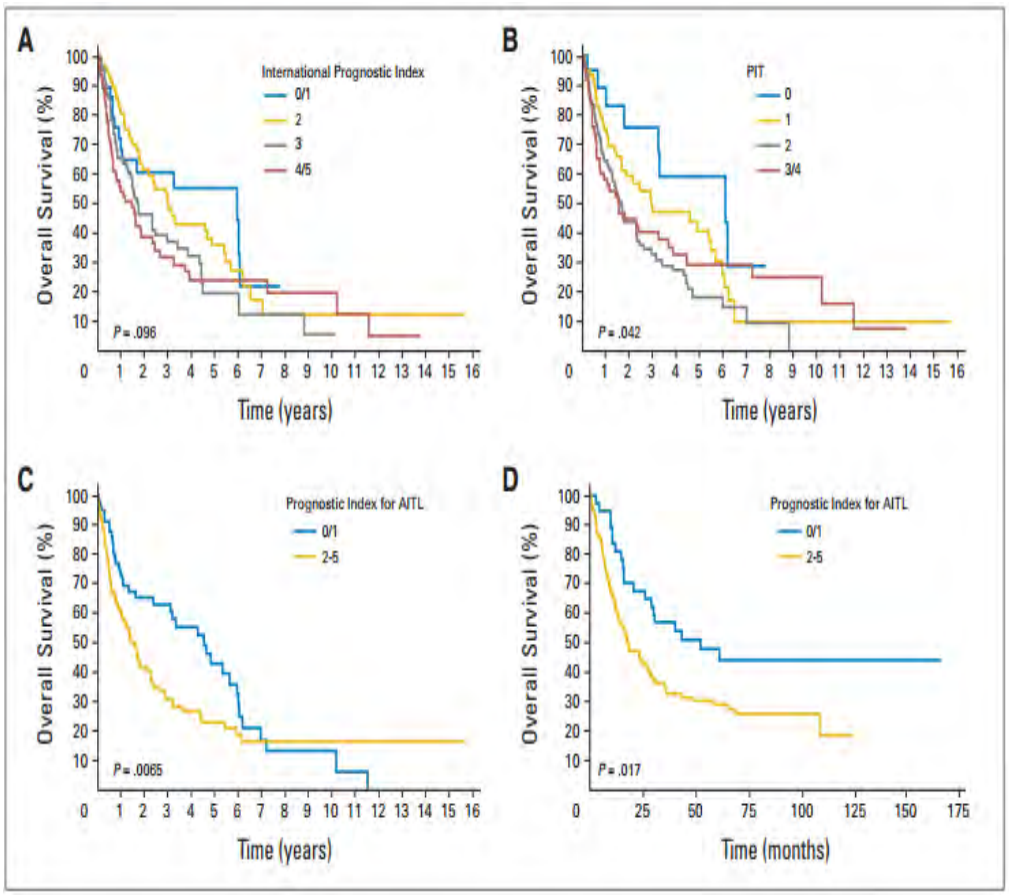


Figure-3 OS for patients with AITL using the (A) IPI, (B) PIT, and (C) PIAI; (D) OS for validation cohort using the PIAI.

Pathology-

Histologically there is paracortical infiltrate of atypical lymphoid and inflammatory cells. Atypical cells are closely associated and intermingled with the expanded follicular dendritic cell (FDC) network. Numerous B immunoblasts are seen in FDC and majority of them are EBV positive(1). The malignant cells are CD4 positive and show pan T cell marker positivity. Reactive CD8 positive cells may be seen. FDC network expressing CD21, CD23 and CD35 is characteristic of AITL. Markers expressed by normal follicular helper T cells

(CD10, CXCL13, PD-1 and Bcl-6) are usually expressed by the neoplastic cells(1). Cytogenetic abnormalities like trisomy 3, trisomy 5, and additional X chromosome are common (1, 50). TET2, IDH2, and DNMT3A mutations are commonly found in AITL the significance of which is unknown.(51-53).

Treatment-

It is rare for AITL to regress spontaneously and usually they follow an aggressive course. Few asymptomatic patients or elderly patients can be managed with steroids alone. Infections are common cause of death and they pose difficulty in administration of aggressive chemotherapy. Combination chemotherapy needs to be considered as first line unless contraindicated as they are found to be superior to steroid alone (54). Early relapses are common. Patients treated with CHOP like regimens had shown 5 year OS of 32% and FFS of 18% (2). Other treatment options include Fludarabine(55), Cladribine(56), Gemcitabine(57) or low dose Methotrexate with Steroids(58), none showing promising results and validation in larger patient cohorts is needed. One of the trials in UK is studying effectiveness with upfront therapy with Fludarabine and Cyclophosphamide. Maintenance therapy with Interferon-alpha has already been used by some in past with variable results (54, 59, 60). Immunosuppressive agent Cyclosporine has also been used. It has direct cytotoxic effect on T cell and it induces apoptosis. It has been shown to be effective but again in some case reports only (61-63). Thalidomide has also showed promise in relapse refractory patients due to its antiangiogenic action (64, 65). VEGF-A inhibitor Bevacizumab was found to be useful in one of case reports as VEGF-A was found to be expressed on both endothelial cells and lymphoma cells (66, 67). Alemtuzumab (68), Denileukin diftitox (69) and anti CD2 or CD4

were found to be effective in small trials(70). Use of Rituximab was investigated because of presence of EBV infected B cells in AITL. One of the studies from France had shown good results, but didn‘t have long term follow up nor more number of patients(71). Autologous SCT should be considered in CR1 whenever suitable and this approach has been found to be useful in various recent studies (72). Allogenic SCT can be considered in patients who have failed other treatment options but with high TRM (3).

3) Anaplastic Large Cell Lymphoma (ALCL)-

Introduction-

WHO 2008 classification classifies primary systemic ALCL into anaplastic lymphoma kinase (ALK) positive or ALK negative (Provisional entity) with variable genetic and clinical behaviour (1). IPTCLP study showed 55% cases were ALK positive and 45% ALK negative (2). ALK positive ALCL occurred in younger age group (median age of 34 years) compared to ALK negative cases (median age of 58years) (73). ALCL is slightly more common in males. Most patients with ALCL have stage III/IV disease (ALK positive-65%, ALK negative- 58%) with majority having B symptoms. Approximately one fourth patients presented with anaemia and one tenth with thrombocytopenia. Bone marrow (BM) involvement was seen in 11% cases of ALK positive group compared to 7% cases with ALK negative ALCL. Bone, BM, subcutaneous tissue and spleen were more commonly involved in ALK positive ALCL while skin, liver and gastrointestinal system were commonly involved with ALK negative cases(73). Most important prognostic factor is ALK status. ALK positive ALCL was found to have 5 year OS of 70% and FFS of 60% compared to ALK negative cases with the values of 49% and 36% respectively (73).

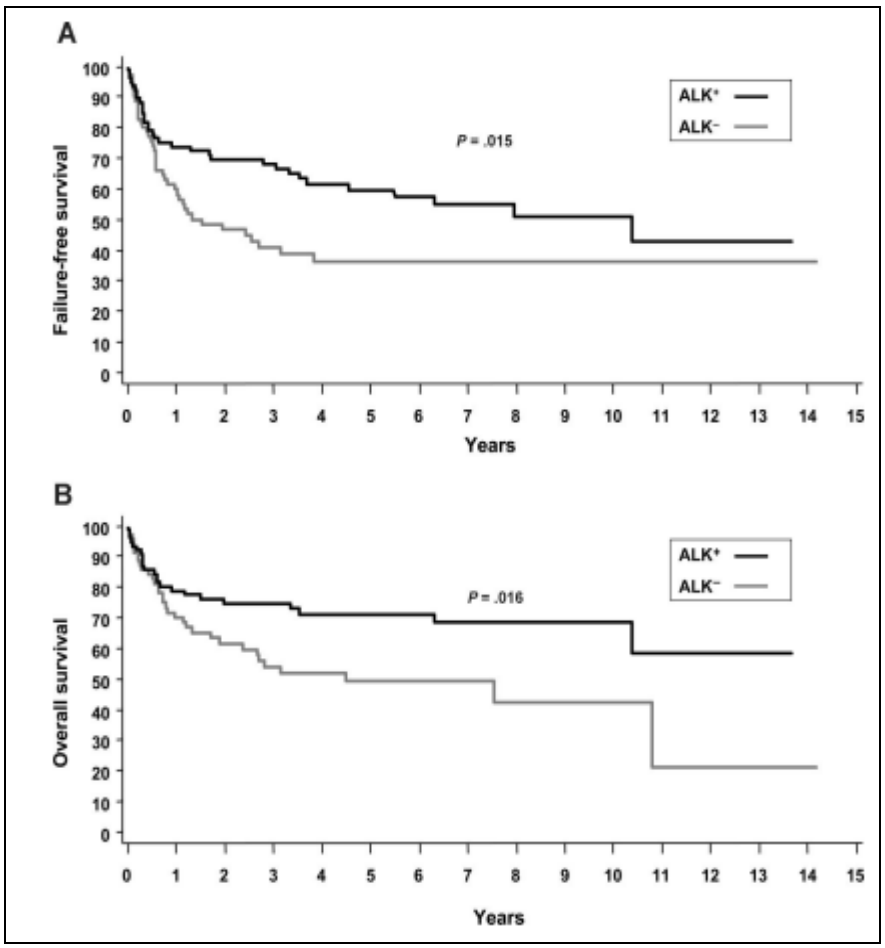


Figure-4-ALK positive and ALK negative ALCL A) FFS, B) OS (73)

Pathology-

Presence of the chromosome translocation t(2;5)(p23;q25) resulting in fusion gene NPM1-ALK (70-75% cases have NPM1 as fusion partner) is characteristic of ALK positive ALCL. Constitutional activation of ALK kinase results in cell proliferation or anti-apoptotic effects(8). Approximately 80 percent of ALCL have classical morphology, with presence of large cells with round or pleomorphic (embryoid) nuclei with prominent nucleoli(1). Classically described hallmark cells have eccentric nucleus with perinuclear hof due to golgi zone (74). 20% cases have variation in morphology with small cell, monomorphic and

lymphohistiocytic variants(1). CD30 postitivity (membrane/golgi pattern) is characteristic while EMA reactivity is commonly seen with systemic than cutaneous B cell markers are absent but PAX-5/BCL-6 can be positive in some(1). Presence or absence of ALK gene rearrangement can be confirmed by either immunohistochemistry or by molecular studies. Other than absence of ALK gene rearrangement ALK negative ALCL is indistinguishable from ALK positive ALCL morphologically(1).

Treatment-

ALCL is the only PTCL which can be cured with CHOP like chemotherapies (3). Even with CHOP approximately 40% ALK positive and 60% ALK negative ALCLs fail to get cured (73). As per one German study addition of Etoposide to CHOP improves response rates (39). In paediatric patients single agent Vinblastine was found to be very effective, but when included in intensive chemotherapy protocols it was not found to reduce relapse rates (75, 76). New drug Brentuximab vedotin (anti- CD30) was found to be very effective with objective response rates of 86% and CR rates of 57% (77). Early reports with Crizotinib (ALK inhibitor) in ALK positive cases shows promise (78). Various other agents used with variable results are Daclizumab (CD25 antibody)(79), humanised antiCD4 (Zanolimumab), HSP90 inhibitors(80) and tumor vaccines(81, 82). As per BCSH guidelines CHOP chemotherapy should be the first choice in ALK positive ALCL and platinum based salvage chemotherapy at relapse (8). Autologous SCT is to be considered in CR2 (8). Prognosis of ALK negative ALCL is in between ALK positive ALCL and PTCL-NOS (5 year OS of 49% compared to PTCL-NOS of 19%). Considering this it is recommended to treat ALK negative cases as that of PTCL- NOS(8).

4) Extranodal Natural killer T (NK/T) cell lymphoma nasal type (NKTCL)-

Introduction-

NK/T lymphoma shows marked regional variation and is found commonly in Asia (China, Korea, Hong Kong) compared to western countries (Except some areas of Latin America)(3). It was previously called as lethal midline granuloma in the past due to its aggressive behaviour. According to IPTCLP, among 1153 cases of PTCL studied 136 (11.8%) were NKTCL. Nasal disease was in 68%, extra nasal in 26% and unclassified in remaining 6% case (83). In another study with 262 patients 85% cases were found to have disease involving upper aero digestive tract(23). Median age of diagnosis was found to be 52 years for nasal and 45 years for the extranasal type (83). The disease has male predominance with approximately over 60% cases being males (23, 83). 87% cases have good performance status at diagnosis and 76% have early stage disease (Advanced stage disease is common in extra nasal disease) (23, 83). 6-14% cases showed bone marrow involvement and 35-40 % cases had B symptoms (23, 83). IPI was found to be less superior to NKPI for prognostication of the patients. The distribution of cases was also unbalanced with the use of IPI compared to NKPI (81% fell in low or low intermediate risk by IPI while with NKPI each risk category had approximately 25% patients) (23). Both IPI and NKPI were found to be prognostic when studied on ITCLP patient cohort (83) (see figure-5). Median OS and FFS for these patients were found to be only 0.65 and 0.48 years (7.8 and 5.8 months), respectively (lowest compared to other PTCLs) (2, 83). Also extra nasal disease was shown to have inferior OS. (0.36 vs. 1.6 years for nasal, P <

0.001) (83) (see figure 6). High serum EBV DNA was found to have adverse prognosis, and it can be used for response assessment (84).

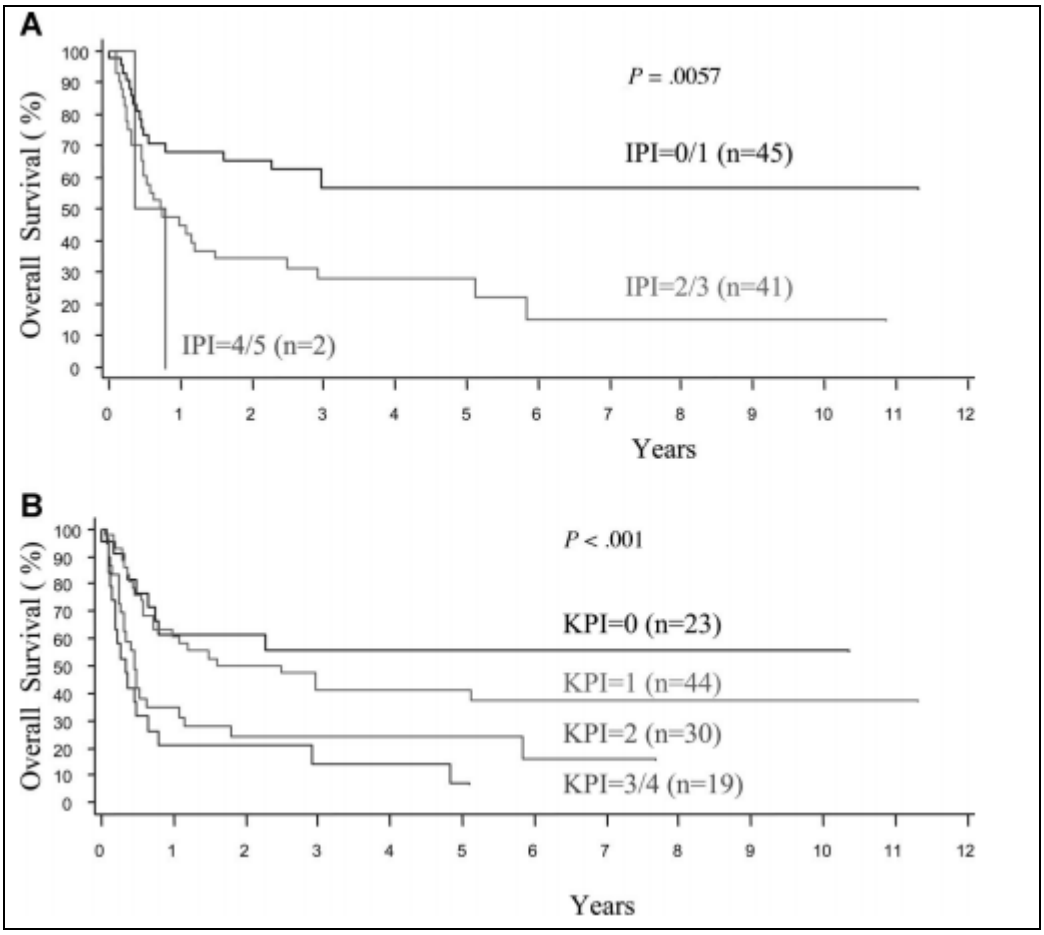


Figure-5 A) OS of NKTCL by IPI B) by NKPI (also called Korean prognostic index-KPI)(83).

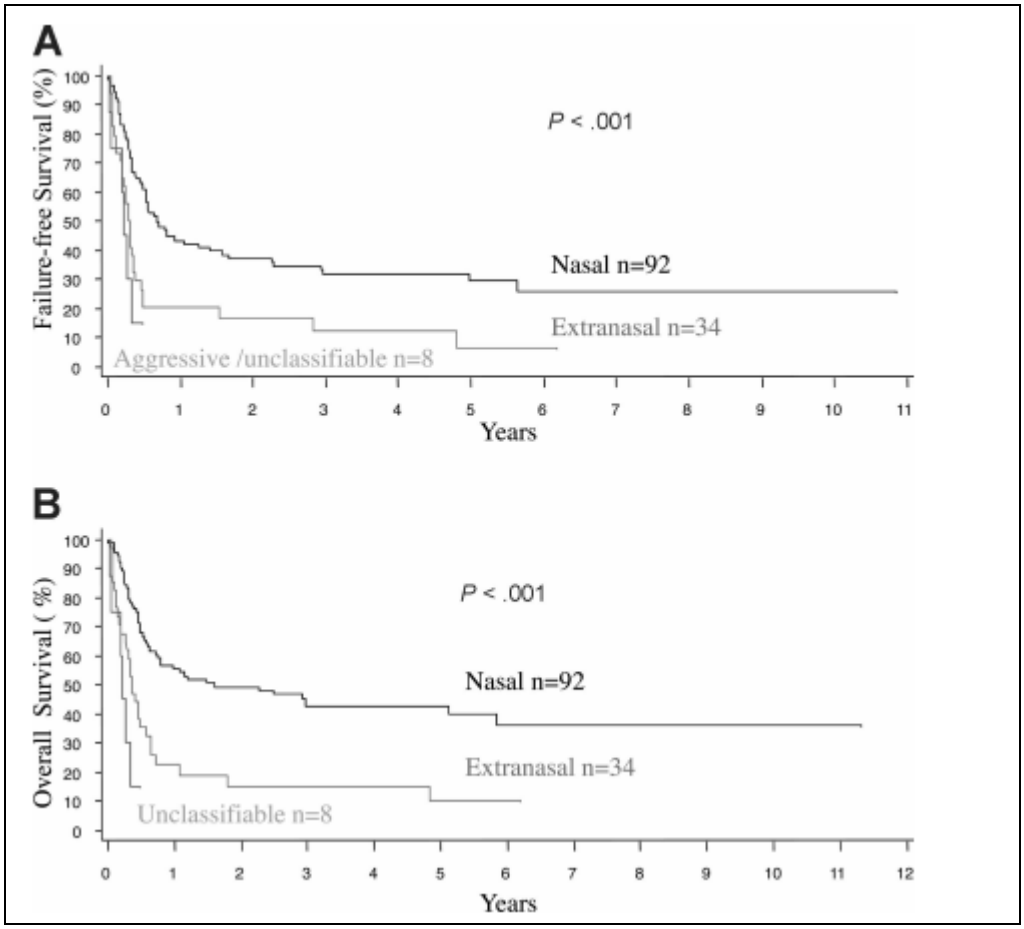


Figure-6 NKTCL A) FFS B) OS (83)

Pathology-

Pathogenesis is related to infection with Epstein-Barr virus (EBV). Monoclonal episomal EBV DNA and EBV encoded small nuclear RNAs (EBER) is universally detected in all cases. Expression of EBV latent membrane protein-1 (LMP-1) by IHC is also detected (85). Over expression of p53 and or p21 is common, mutation of p53 is seen in one fourth cases(86). Downregulation of other tumour suppressor like PRDM1 and FOXO3 is also found recently in etiopathogenesis(87). Morphologically medium sized cells infiltration with angioinvasion/ angiodistruction is characteristic but not essential(1).

Immunophynotype is same as natural killer cell (CD2, CD56, and cytoplasmic CD3). Mosly of these also express granzyme B, TIA-1, and perforin (88).

Treatment-

The tumour is found to be resistant to anthracycline based chemotherapy (Inferior outcomes with CHOP based chemotherapy)(89, 90). The cancer cells have been shown to express P-glycoprotein as a drug efflux pump leading to resistance but it is not confirmed (91, 92). Loco regional radiotherapy (RT) with or without chemotherapy was found to be effective in disease control in localised disease (93, 94). The consensus recommendation on dose of radiation is more than 46Gy and optimum is 50Gy to nose and sinuses(8). Some recent reports confirm addition of chemotherapy (Platinum compound based chemotherapy was used in these studies) to RT improves outcome compared to historical cohort of localised disease treated with radiation alone (95, 96). In a study form Mexico, sandwich RT (Local RT given between 3^{rd} and 4^{th} cycle of total 6 cycles) showed 5 year OS of 65 % (97). This disease is found to be sensitive to L-asparaginase. The protocol SMILE (Dexamethasone, Methotrexate, Ifosfamide, L-asparaginase and Etoposide) was found to be effective in relapse and refractory settings and showed response rates of around 67% and CR rates of 50 % (98). Multiple other studies done using this protocol on patients with disseminated disease and relapse/refractory patients showed approximately 80% response rates (CR in 45-65% cases), with estimated 5 year OS and disease free survival of 50% and 64% respectively (99, 100). This protocol is presently recommended for disseminated disease or relapse/refractory disease (8).

5) Hepatosplenic T-cell lymphoma (HSTCL)-

Introduction-

HSTCL is very rare aggressive lymphoma which is usually seen in young males with median age of 34 years (8). Most of the patients present with systemic symptoms (fever) with cytopenias. On evaluation liver and spleen enlargement with bone marrow involvement is almost seen in all cases (3). 10-20% cases are associated with immune dysregulation and seen with patients with Chrons disease or in renal transplant recipients (101-103). It requires high degree of suspicion and experienced haematopathologist for diagnosis.

Pathology-

Small to medium sized lymphoid cells are seen infiltrating liver, spleen and bone marrow (1). The neoplastic cells express CD2, CD3, CD7 and CD16 with variable CD56 expression. CD4, CD5, CD8 and B cell markers are usually not expressed (1). Most of the cases have TCR-γδ rearrangement with few cases having TCR-αβ rearrangement being reported. They are negative for EBV. Cytogenetic abnormality identified is chromosome 7 abnormalities including isochromosome 7q and other less common abnormalities include trisomy 8 and loss of sex chromosome(1).

Treatment-

Outcome of these patients is dismal with CHOP like chemotherapy. In IPTCLP 5 year OS was found to be 7% and PFS was 0%. A study from France, with 43 patients showed 43% CR rates with CHOP like chemotherapy and median survival was found to be 16 months (104). Alemtuzumab with Cladribine (105),

Pentostatin (106), and allogeneic hematopoietic stem cell transplantation (107) were also tried with variable results. Considering poor outcome with conventional therapy it is recommended for clinical trial enrolment with newer agents(8).

6) <u>Adult T cell leukaemia - lymphoma (ATLL)-</u>

Introduction-

HTLV-I infection is found to be associated with occurrence of ATLL. The virus is endemic in Japan, the Caribbean, Africa, South America(108). HTLV-I infects 15-20 million individuals world-wide, but majority remains asymptomatic carriers. 1-5% is the life time risk in the infected patients to develop ATLL. It is divided into four clinical type: acute (leukaemic) (57%), lymphoma (19%), chronic (19%) and smouldering (5%)(109). As per IPTCLP 9.6% cases (126 patients from 1314 patients) were found to have ATLL. The median age of diagnosis was 62 years with slight male preponderance. Advanced stage disease was seen in 90.4% cases with B symptoms in 31%. 28.1% cases had bone marrow involvement with and 40.3% cases had abnormal LDH. IPI was found to be independent predictor of survival on multivariate analysis (110). Main clinical features include lymphadenopathy (80%), hepatosplenomegaly (67%), skin lesions (60%), osteolytic lesions (10%), CNS lesions (10%), and hypercalcaemia (63%) (111). Opportunistic infections are common (Pneumocystis jiroveci pneumonia, aspergillosis or candidiasis, strongyloidiasis and cytomegalovirus infection) (112). The prognosis of ATLL is poor. Median survival for acute, lymphoma and chronic sybtypes was found to be only 6.2, 10.2 and 24.3 months, respectively(8).

Pathology-

100% cases of ATLL are associated with HTLV-1 infection (113). The nneoplastic cells have typical morphology (―flower cells") and immunophynotype is characterised by CD4 and CD25 positivity and CD7 negativity (1).

Treatment-

Treatment is required in acute and lymphoma subtypes while chronic and smouldering subtypes can be offered wait and watch policy (8). CHOP-14 regimen had shown 66% overall response rates with 25% CR rates and median survival of 13 months in one study of 61 patients (114). Another study by Japan Clinical Oncology group (JCOG) showed VCAP (Vincristine, Cyclophosphamide, Doxorubicin and Prednisolone) /AMP (Doxorubicin, Ranimustine and Prednisolone) /VECP (Vindesine, Etoposide, Carboplatin and Prednisolone) compared to CHOP-14 alone showed improved response rates (40% vs 25%, p=0.02) and improved 3 year survival (24% vs 13%)(115). Various other chemotherapy regimens were tried but no study showed response rates like JCOG study(8). The improved response rates were noted in lymphoma subtype while the response rates in the leukemic form remained poor with one of the study showing CR rates of 20% with survival of few months in leukemic type (114). Anti retroviral drugs including Zidovudine with interferon- α were found to be effective in chemotherapy failures as well as when they were used upfront (8, 116, 117). Various other treatment options that are in development are monoclonal antibodies (anti CD4, anti CD25, anti CD52, anti CCR4), Arsenic tri oxide, Bortezomib and Tax-directed vaccines(8). Autologous SCT was not found to be

beneficial while allogenic transplant is recommended in CR 1 in suitable patients (118).

I) Ouctcome-

International peripheral T cell lymphoma project (IPTCLP), which is largest, multicenter, worldwide study compared 5 year overall survival rates and failure free survival rates in different subtypes of PTCLs (see figure 7). The 5-year OS and FFS for ALK positive ALCL was found to be maximum (70% OS /60% FFS) followed by ALK negative subtype (49% OS/ 36% FFS). For PTCL-NOS and AITL 5 year OS was only 32% with FFS of 20% and 12%, respectively. For all NKTCL OS was found to be 32% (nasal-42%, extranasal 9%) with FFS of 29% in nasal and 6% in extranasal subtypes. Worse outcomes were found with EATL (20% OS / 4% FFS), ATLL (14% OS / 12% FFS) and HSTCL (7% OS/ 0% FFS) (2).

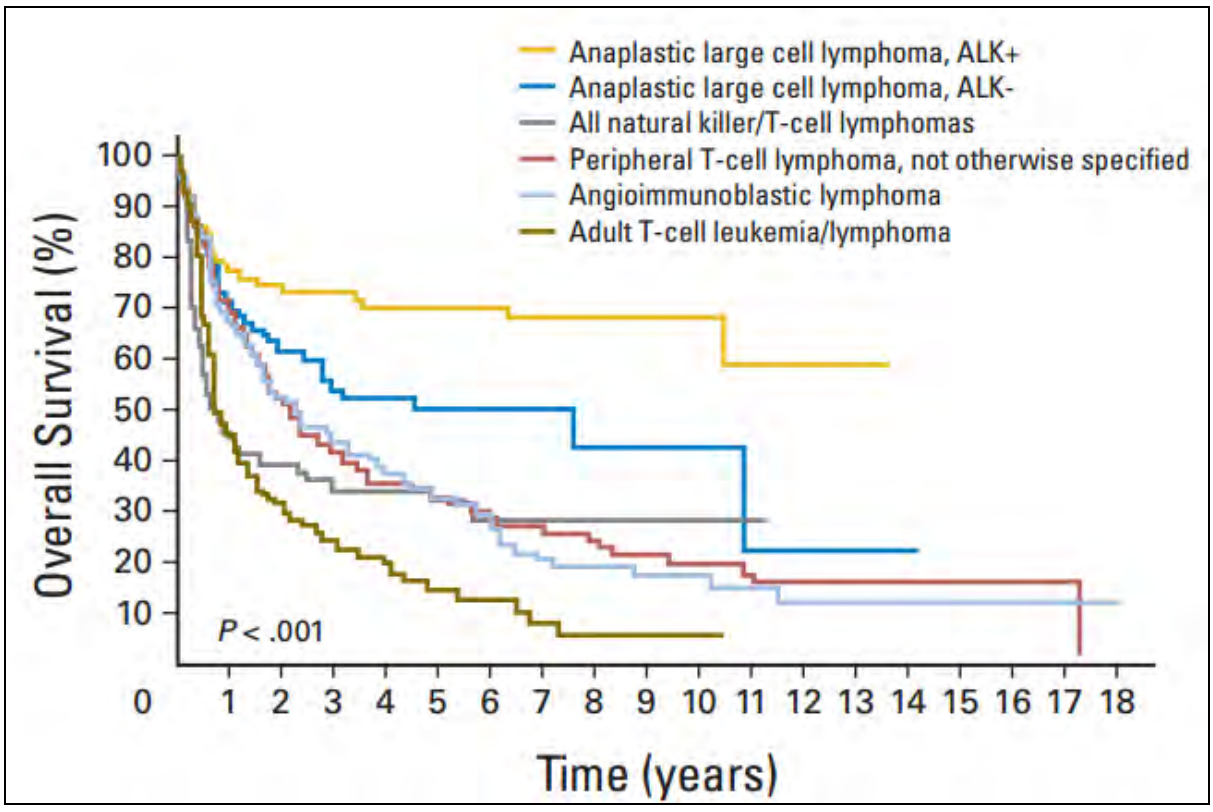


Figure-7 OS of patients with common PTCL subtypes (2).

J) Summary-

PTCL is a group of uncommon lymphomas. Though found less commonly in western countries, some subtypes (ATLL, NKTCL) are found with higher incidences in far eastern countries. The biology of these lymphomas is less well studied and treatment is extrapolated from the more common counterparts i.e., B cell lymphomas. It is uniformly shown in various studies that the outcome of these patients remains universally poor (except ALK positive ALCL) with conventional treatment modalities. With the help of gene expression profiling and other new techniques of next generation sequencing new insights in biology and various targeted agents may be developed in near future. Though present outcomes look bleak, future holds promise for development of newer treatment modalities.

Aims & Objectives

1. To study the clinical profile of patients with Peripheral T cell lymphoma (PTCL).
2. To study the relative proportions of different types of PTCLs in Indian population.
3. To study the response of patients with PTCL to chemotherapy with or without bone marrow transplant.
4. To study the outcome of the patients with PTCL who underwent treatment.
5. To identify the demographic, clinical, laboratory and molecular parameters that can predict prognosis in PTCLs.

Patients and methods

This study protocol was approved by our Institutional Review Board (IRB). This is a retrospective analysis of patients diagnosed to have PTCL from January 2007 to December 2012.

Duration of the study:

January 2014 to December 2014.

Settings of the study:

Department of Clinical Haematology.

Patients:

Inclusion Criteria

1) All adult patients (age ≥ 18 years) with PTCL.

Exclusion Criteria

1) Patients with other types mature T cell Lymphoma (E.g. - Cutaneous T cell lymphoma).
2) Patients with PTCL whose data were not retrievable.

Diagnosis :

The diagnosis of peripheral T cell lymphoma was made according to the WHO Classification of Tumors of Hematopoietic and Lymphoid Tissues, Fourth Edition (2008) (1).

Methods:

Collection of data- After approval by IRB, the patient database at our institution was reviewed to identify all patients with histopathologically proven cases of PTCL at our institute from January 2007 to December 2012. Medical information regarding the clinical/laboratory details at diagnosis, post treatment response and adverse events were obtained from the hospital records (laboratory reports/ physician‘s documentation in hospital charts/hospital discharge summaries). Only patients who had taken treatment at our institute have only been assessed for response and survival analysis.

Treatment: Patients had received various treatment modalities, mainly CHOP based chemotherapy. Patients who had relapsed had received various salvage chemotherapy. Few patients had also received autologous/ allogenic stem cell transplant. Data was collected with regard to the type of treatment, duration of treatment, side effects and overall outcome with respect to treatment given.

Data analysis: Results were analyzed in terms of the clinical characteristics and laboratory parameters at diagnosis, response to the different treatment regimens [drug(s)], the survival patterns and the prognostic effects of patient characteristics

on overall survival. The response to treatment was assessed in terms defined in appendix-3.

All patients started on treatment were considered evaluable for response and outcome. Overall survival (OS) was measured from the start of therapy up to the date of death (from any cause). For the purpose of this analysis, patients who had relapsed or had progressive disease during therapy and then subsequently lost to follow up or were sent for palliative care were considered as dead, 30 days after the last follow up. Event-free survival (EFS) was calculated from the start of therapy up to the first adverse event, i.e. relapse or progression, secondary malignancy or death. The closing date for analysis was December 31, 2014.

Statistics:

Descriptive statistics were calculated for all variables. Differences in proportions were assessed using the chi-square statistic. Survival curves were drawn by the Kaplan-Meier method and compared by the log-rank test. The relationships of clinical features to the outcome of the procedure were analyzed by univariate Cox proportional Hazard model. Multivariate analysis was done by forward stepwise method. For all tests, a 2-sided P-value of 0.05 or less was considered statistically significant. SPSS 16.0 software was used for the analysis.

Results

Between January 2007 to December 2012, a total of 243 adult patients were diagnosed to have PTCL (non cutaneous).

Of 243 patients only 149 (61.3%) patients who received treatment at our institution. All patients (n=243) were included for the analysis of baseline characteristics. The patients who received treatment/ chemotherapy (n=121) were considered evaluable for assessment of response to treatment and for survival analysis.

Certain data are available on all patients, while certain data are available only on a portion of the patients. For each result category, the numbers of patients involved are mentioned.

1) DEMOGRAPHY AND CLINICAL FEATURES AT DIAGNOSIS:

A) State and region wise distribution patients (Figure 8 and 9)-

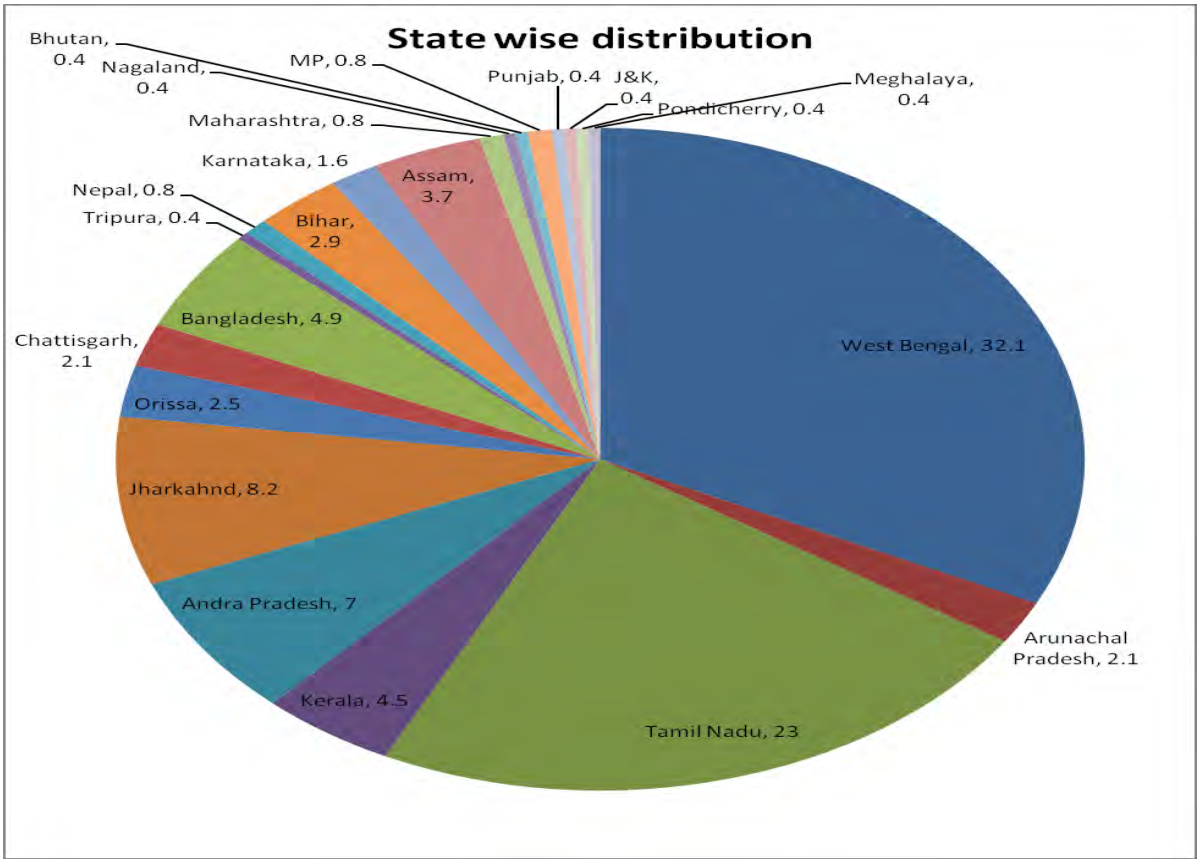


Figure-8 State wise distribution of patients in percentage.

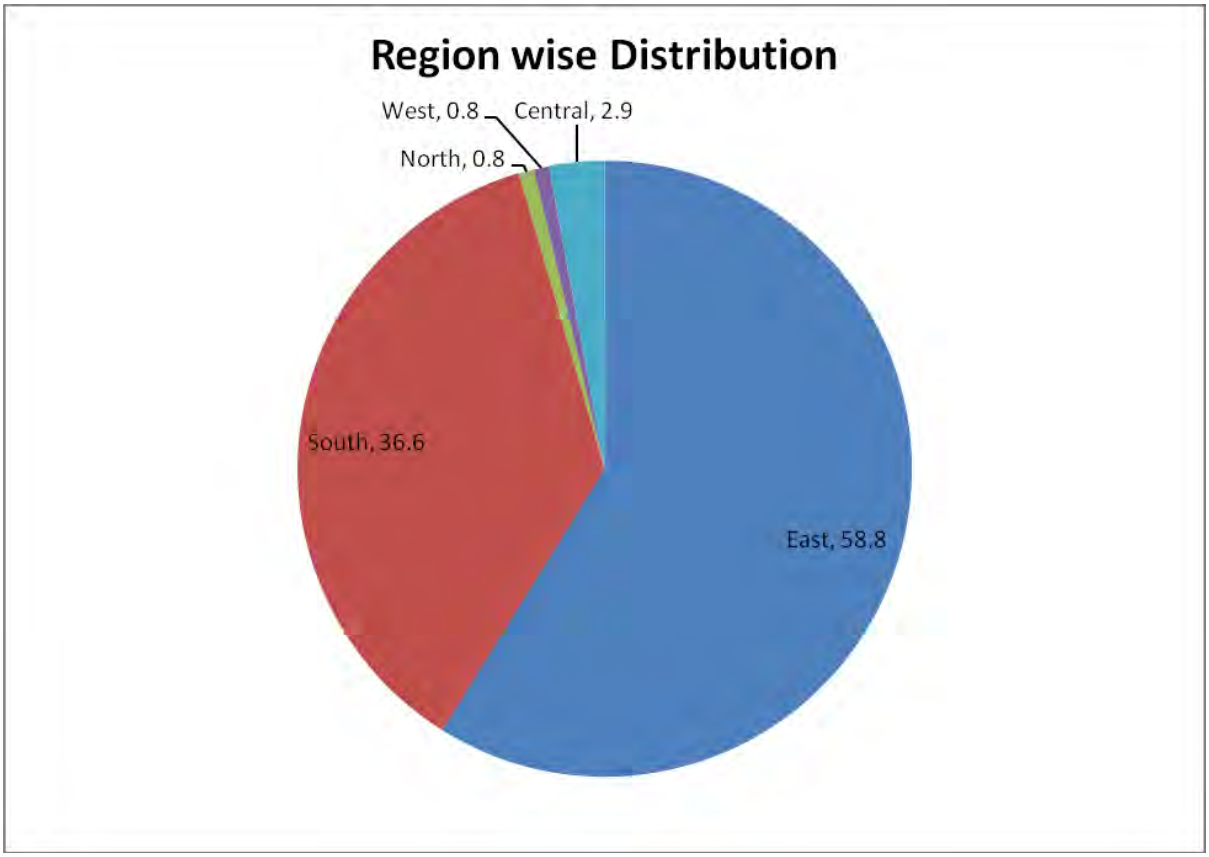


Figure-9 Region wise distribution of patients in percentage.

Majority of the patients diagnosed with PTCL belonged to West bengal (n= 78, 32.1%) and other north eastern states. After dividing the country in five regions (East, West, North, South and Central India), maximal number of patients were hailing from eastern part of country (n =143, 58.5%).

Note patients from neighbouring countries like Nepal, Bhutan and Bangladesh are considered as states for the demographic analysis.

B) Age distribution of patients (Figure 10)-

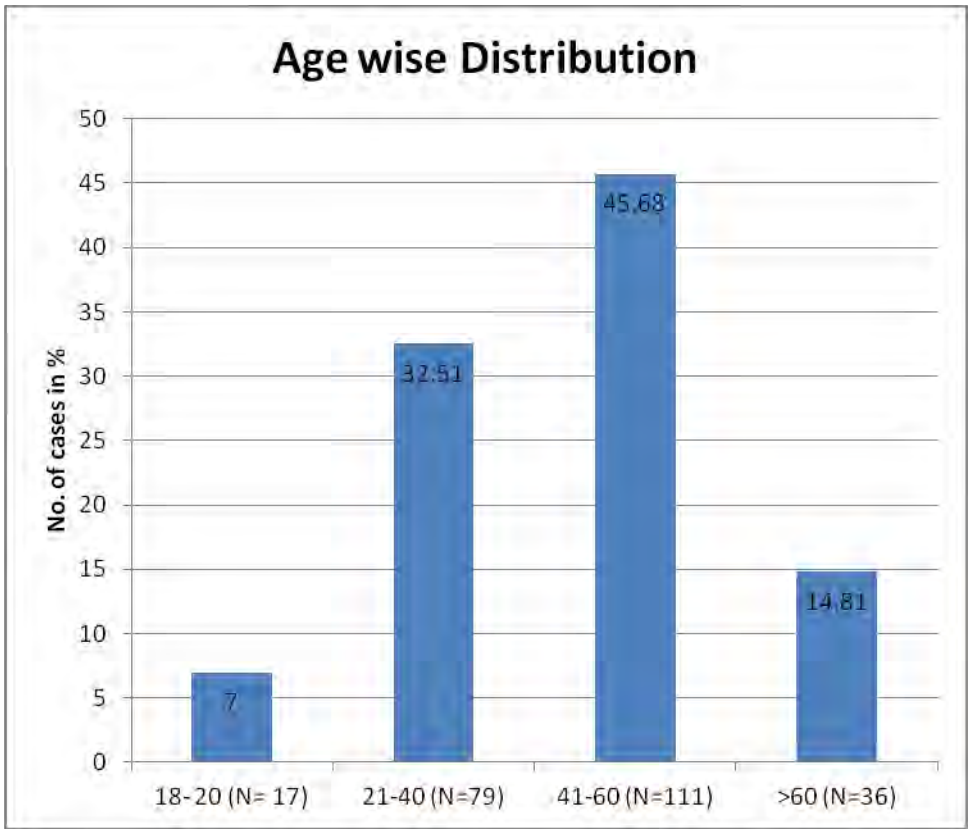


Figure 10- Age wise distribution of patients.

C) Occupation wise distribution of patients (Figure 11)-

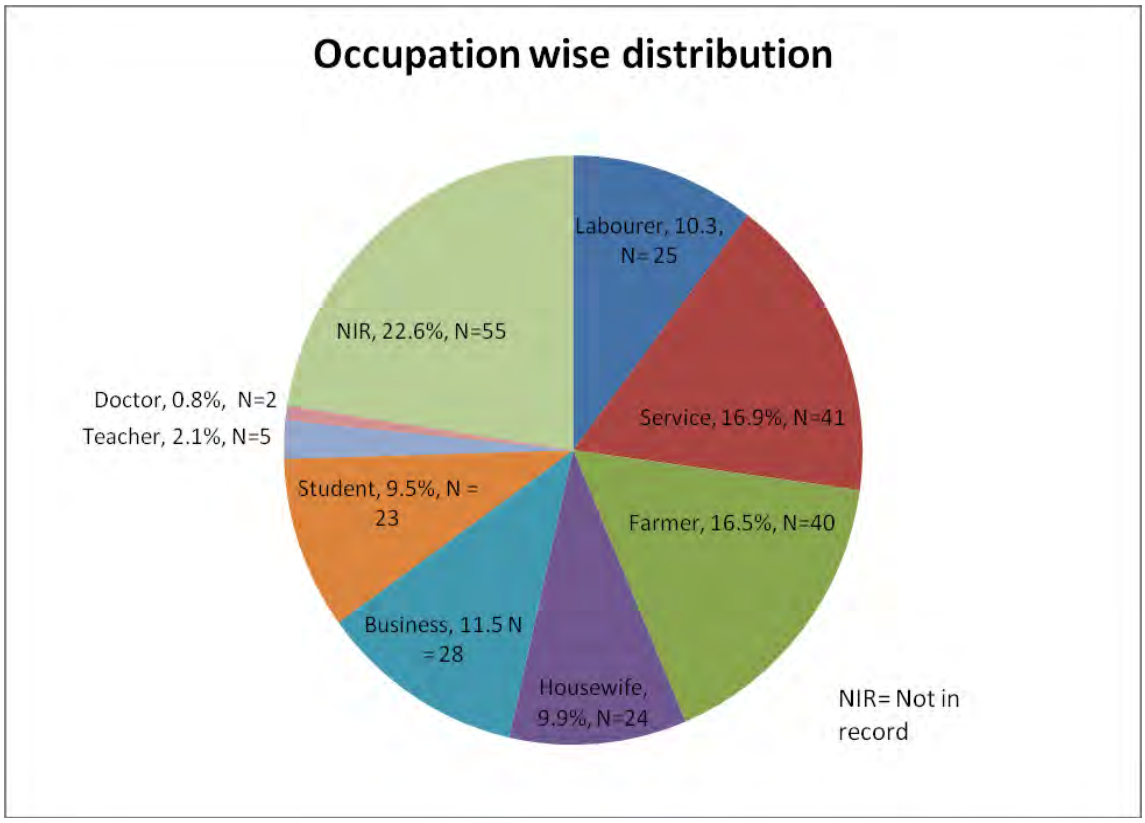


Figure-11 Occupation wise distribution of patients. (n=243)

D) Diagnosis wise distribution (Figure 12)-

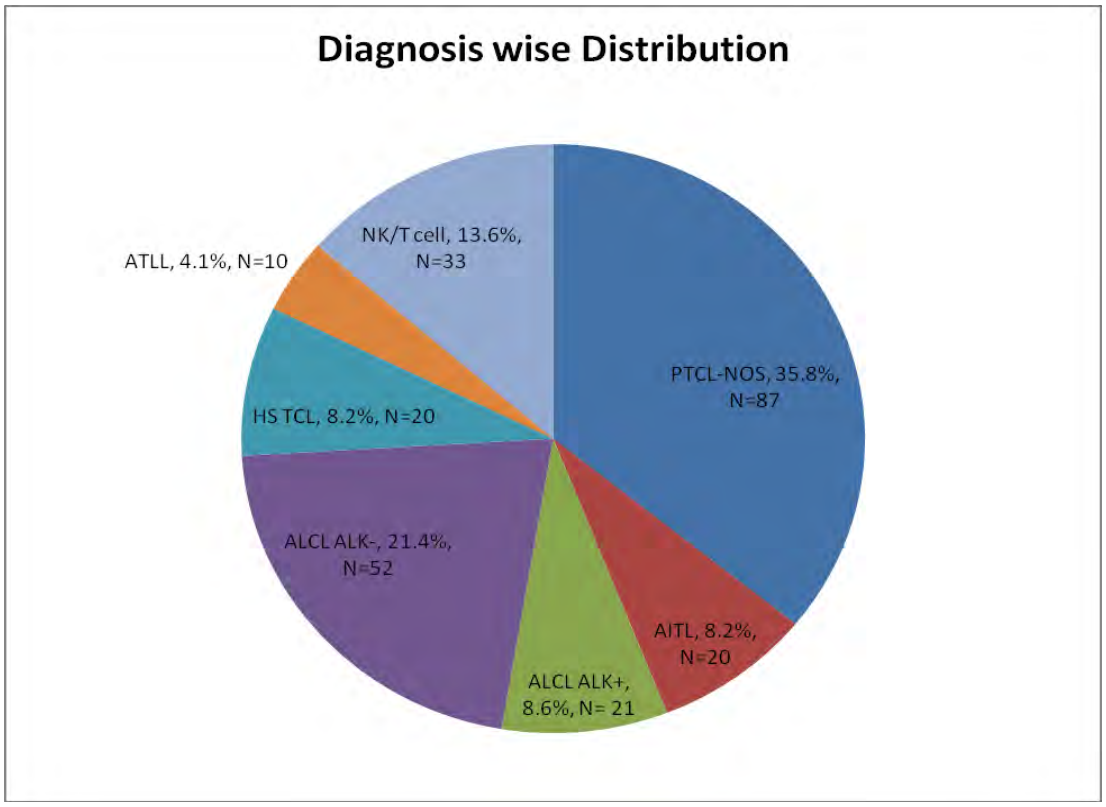


Figure-12- Distribution of 243 cases by histological subtypes.

PTCL-NOS- Peripheral T cell lymphoma not otherwise speocfied, AITL- Angioimmunoblastic T cell Lymphoma, ALCL ALK+- Alk positive anaplastic large cell lymphoma, ALCL ALK- - Alk negative anplastic large cell lymphoma, HSTCL- Hepatospelenic T cell lymphoma, ATLL- Adult T cell lymphoma leukemia, NK/Tcell- Nk/T cell lymphoma (NKTCL).

E) Symptoms at presentation- (Table 4) (n=236)

Symptoms at presentation	**Frequency (%)**
Lymph node swelling	89 (37.7)
Fever	160 (67.7)
Upper aerodigestive tract related	40 (16.9)
Abdomen related	30 (12.7)
Neurological symptoms	6 (2.5)
Skin lesions	3 (1.3)

F) Baseline patient charecteristics of all patients (**Table 5**)-

Variables	**N (%)/ Median (Range)**
Age (years) (n= 243)	45 (18-80)
Male Sex (%)(n=243)	202 (81.3)
Symptomatic before diagnosis (Months) (n= 234)	3 (0-48)
Family history of malignancy (%) (n=103)	2 (0.8)
Addictions (%) (n= 106)	28 (26.4)
Haemoglobin (gm/dl) Platelet count (/cumm) WBC count (/cumm)	10.9 (10-20) 1.9 X 10^6 (4X10^3 – 6.68 X 10^6) 7600 (900-113,400)
HIV positive status (%) (n=232) HBsAg positive status (%) (n=232)	4 (1.6) 3 (1.2)
Time from diagnosis to starting of treatment (Days) (n= 120)	15 (0-247)
Stage (%) (n=200) I/II III/IV	52 (26) 148 (74)

B symptoms (%) (n=233)	183 (78.5)
Type of B symptom (n=233) (%) Fever Weight loss Night sweating	 160 (65.8) 83 (35.6) 8 (3.4)
Bulk disease (%) (n=243)	4 (1.6)
Bulk size (cm) (n=4)	13 (10-20)
ECOG performance status (%) (n=240) 0 1 2 3 4 5	 0 (0) 52 (21.7) 152 (63.3) 32 (13.3) 4 (1.7) 0 (0)
Bone marrow invovled (%) (n=198)	73 (36.9)
Hepatomegaly (%) (n=238)	78 (32.8)

Spenomegaly (%) (n=239)	93 (38.9)
Lymph node invovlement Cervical (%) (n=237) Axillary (%) (n=237) Supraclavicular (%) (n=237) Mediastinum (%) (n=237) Abdomen (%) (n=239) Epitroclear (%) (n=236) Inguinal (%) (n=236)	 131 (55.3) 96 (40.5) 27 (11.4) 32 (13.5) 99 (41.4) 8 (3.4) 76 (32.2)
Other sites (%) Upper Aerodigestive tract (n=236) Bones (n=236) Testis (n=236) Skin (n=237) Lungs (n=237) Orbit (n=237) Gastrointentestinal tract (n=237) Genitourinary tract (n=237)	 17 (7.2) 14(5.9) 1 (0.4) 13 (5.5) 8 (3.4) 6 (2.5) 48 (20.3) 2 (0.8)

Autoimmune manifestations (%) (n=243) Autoimmune hemolytic anemia Immune thrombocytopenic perpura	 4(1.6) 1(0.4)
Hemophagocytosis (%) (n=243)	10 (4.1)
Hypergammaglobinemia (%) (n=20)	4 (20)
LDH U/L (n= 206) >460	 175 (85%)

G) Baseline charecteristics of all patients as per histological diagnosis (**Table 6**) –

Variables N(%)/ Median (Range)	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Age (years) (n=243)	45 (18-80) (N=86)	53 (18-74) (N=20)	30 (18-68) (N=21)	50 (18-78) (N=52)	33 (18-69) (N=20)	59 (51-72) (N=10)	41 (19-73) (N=33)
Male Sex (%) (n=243)	73 (83.9) (N=87)	19 (95) (N=20)	19 (90.5) (N=21)	39 (75) (N=52)	14 (70) (N=20)	10 (100) (N=10)	28 (84.8) (N=33)
Symptomatic before diagnosis (Months) (n= 234)	3 (0-30) (N=83)	3 (1-48) (N=19)	3 (1-24) (N=21)	3 (0-24) (N=51)	6 (1-12) (N=18)	2 (0-36) (N=10)	5 (1-34) (N=32)

Variables Table 6 continued	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Family history(%) (n=103)	0 (0) (N=30)	0 (0) (N=6)	0 (0) (N=8)	1 (5.3) (N=19)	0 (0) (N=13)	0 (0) (N=3)	1 (4.2) (N=24)
Addiction (n= 106)	11 (33.3) (N=33)	1 (20) (N=5)	0 (0) (N=8)	6 (27.3) (N=22)	2(15.4) (N=13)	2 (66.7) (N=3)	6 (27.3) (N=22)
Time from diagnosis to starting of treatment (Days) (n= 120)	19.5 (0-247) (N=44)	17 (5-74) (N=7)	10.5 (0-84) (N=18)	17 (0-31) (N=23)	22 (1-48) (N=7)	11 (7-13) (N=3)	16 (0-80) (N=18)

Variables Table 6 continued	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Stage (%) (n=200)	(N=74)	(N=15)	(N=21)	(N=40)	(N=20)	(N=6)	(N=24)
I/II	14 (18.9)	0 (0)	8 (38.1)	12 (30)	0 (0)	0 (0)	18 (75)
III/IV	60 (81.1)	15(100)	13 (61.9)	28 (70)	20(100)	6 (100)	6 (25)
B sympt. (%) (n=233)	65 (79.3) (N=82)	17 (79.5) (N=19)	14 (66.7) (N=21)	40 (80) (N=51)	18 (100) (N=18)	10 (100) (N=10)	23 (71.9) (N=32)
B sympt. (n=233)	(N=82)	(N=19)	(N=21)	(N=51)	(N=18)	(N=10)	(N=32)
Fever	58 (70.7)	16 (84.2)	12 (57.1)	31 (60.8)	17 (94.4)	8 (80)	18 (56.2)
Wt. loss	28 (34.1)	5 (26.3)	4 (19)	15 (29.4)	12 (66.7)	7 (70)	12 (37.5)
Nt. Sweat	3 (3.7)	1 (5.3)	1 (4.8)	1 (2)	0 (0)	0 (0)	2 (6.2)

Variables Table 6 continued	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Bulk disease (n=243)	1 (1.2) (N=867)	0 (0) (N=20)	2 (9.5) (N=21)	3 (5.8) (N=52)	0 (0) (N=20)	0 (0) (N=10)	0 (0) (N=33)
ECOG-PS (n=240)	(N=85)	(N=20)	(N=21)	(N=52)	(N=20)	(N=10)	(N=32)
<2	12 (14.1)	1 (5)	9 (42.9)	16 (30.8)	0 (0)	2 (20)	12 (37.5)
≥2	73 (85.9)	19 (95)	12 (57.1)	36 (69.2)	20 (100)	8 (80)	20 (62.5)
BM invovled (n=198)	33 (45.2) (N=73)	6 (42.85) (N=14)	0 (0) (N=21)	8 (20) (N=40)	18 (90) (N=20)	4 (66.7) (N=6)	4 (16.7) (N=24)

Variables Table 6 continued	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Hepatoegaly (%) (n=238)	24 (28.2) (N=85)	12 (63.2) (N=19)	4 (19) (N=21)	16 (31.4) (N=51)	15 (75) (N=20)	3 (30) (N=10)	4 (12.5) (N=32)
Spenomgaly (%) (n=239)	34 (40) (N=85)	13 (68.4) (N=19)	6 (28.6) (N=21)	13 (25) (N=52)	18 (90) (N=20)	4 (40) (N=10)	5 (15.6) (N=32)
LN(n=237)	(N=83)	(N=19)	(N=21)	(N=51)	(N=20)	(N=10)	(N=33)
Involved Cervical	55 (66.3)	16 (84.2)	10 (84.2)	28 (54.9)	0 (0)	9 (90)	13 (39.4)
Axillary	45 (54.2)	15 (78.9)	7 (33.3)	17 (33.3)	2 (10)	8 (80)	2 (6.1)

Variables **Table 6 continued**	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Supraclavicular	10 (12)	3 (15.8)	6 (28.6)	6 (11.8)	0 (0)	2 (20)	0 (0)
Mediastium (%) (n=237)	12 (14.5) (N=83)	3 (15.8) (N=19)	3 (14.3) (N=21)	11 (21.6) (N=51)	0 (0) (N=20)	3 (30) (N=10)	0 (0) (N=33)
Abdomen (%) (n=239)	49 (57.6) (N=85)	11 (57.9) (N=19)	8 (38.1) (N=21)	21 (40.5) (N=52)	0 (0) (N=20)	7 (70) (N=10)	3 (9.4) (N=32)
Epitrocler (%) (n=236)	4 (4.8) (N=83)	2 (10.5) (N=19)	0 (0) (N=21)	2 (3.9) (N=51)	0 (0) (N=20)	0 (0) (N=10)	0 (0) (N=32)
Inguinal (%) (n=236)	535 (42.2) (N=83)	14 (73.7) (N=19)	5 (23.8) (N=21)	13 (25.5) (N=51)	1 (5) (N=20)	6 (60) (N=10)	2 (6.2) (N=32)

Variables **Table 6 continued**	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Others (n=236) ADT (n=236) Bones	(N=83) 17 (20.5) (N=83) 1(1.2)	(N=19) 0 (0) (N=19) 0 (0)	(N=21) 2 (9.5) (N=21) 3 (14.3)	(N=50) 4 (8) (N=51) 10 (19.1)	(N=20) 0 (0) (N=20) 0 (0)	(N=10) 3 (30) (N=10 0 (0)	(N=33) 22(66.7) (N=32) 0 (0)
(n=236) Testis (n=237) Skin (n=237) Lungs (n=237) Orbit	(N=84) 0(0) (N=78) 6(7.1) (N=79) 5(6) (N=83) 1(1.2)	(N=19) 0 (0) (N=18) 1(5.3) (N=19) 0(0) (N=19) 0(0)	(N=21) 0 (0) (N=17) 4(19) (N=21) 0(0) (N=20) 1(4.8)	(N=50) 0 (0) (N=51) 0(0) (N=49) 2(3.9) (N=50) 1(2)	(N=20) 0 (0) (N=20) 0(0) (N=20) 0(0) (N=20) 0(0)	(N=10) 0 (0) (N=10) 0(0) (N=9) 1(10) (N=10) 0(0)	(N=31) 1 (3.1) (N=30) 2(6.2) (N=32) 0(0) (N=29) 3(9.4)

Variables **Table 6 continued**	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
(n=237) GIT (n=237) GUT	(N=78) 7(8.2) (N=85) 0(0)	(N=19) 0(0) (N=19) 0(0)	(N=19) 2(9.5) (N=21) 0(0)	(N=46) 4(8) (N=49) 1(2)	(N=20) 0(0) (N=20) 0(0)	(N=9) 1(10) (N=10) 0(0)	(N=29) 3(9.4) (N=31) 1(3.1)
Autoimune (%) (n=243) AIHA ITP	(N=87) 0(0) 0(0)	(N=17) 2(10) 1(5)	(N=21) 0(0) 0(0)	(N=52) 0(0) 0(0)	(N=20) 0(0) 0(0)	(N=8) 2(20) 0(0)	(N=33) 0(0) 0(0)
Hemophagocytosis (%) (n=243)	4 (4.6) (N=83)	0 (0) (N=20)	1 (4.8) (N=20)	2 (3.8) (N=50)	1 (5) (N=19)	0 (0) (N=10)	2 (6.1) (N=31)

Variables **Table 6 continued**	**PTCL** **NOS**	**AITL**	**ALCL** **(ALK +)**	**ALCL** **(ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
Hypergammaglobinemia (%)	NA	4(20) (N=20)	NA	NA	NA	NA	NA

(ECOG- PS- Eastern cooperative oncology group- performance status, BM- Bone marrow, LN- Lymph node, ADT- Aerodigestive tract, GIT- Gastrointestinal tract, GUT- Genitourinary tract, AIHA- Autoimmune hemolytic anemia, ITP- Immune thrombocytopenic perpura).

H) Prognostic scores for peripheral T cell lymphoma (Table 7)-

Prognostic scores	**Risk category (Total score)**	**N (%)**
International prognostic Index **(IPI)** (n=188)	Low risk (0/1)	28 (11.5)
	Low intermediate risk (2)	27 (11.1)
	High intermediate risk (3)	92 (37.9)
	High risk (4/5)	41 (16.9)
Prognostic Index for T-cell lymphoma **(PIT)** (n=186)	Low risk (0)	9 (9)
	Low intermediate risk (1)	31 (12.8)
	High intermediate risk (2)	72 (29.6)
	High risk (3/4)	74 (30.5)
Modified Prognostic Index for T-cell lymphoma **(mPIT)** (n=137)	Low risk (0/1)	15 (6.2)
	Intermediate risk (2)	66 (27.2)
	High risk (3/4)	56 (23)

International peripheral T-cell lymphoma Project **(IPTCLP)** (n=232)	Low risk (0) Low intermediate risk (1) High intermediate risk (2) High risk (3)	33 (14.2) 103 (44.4) 86 (37.1) 10 4.3)

I) Prognostic scores for PTCL as per histological subtypes (Table 8) –

Prognostic Score (%)	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
IPI (n=188)	(N=69)	(N=14)	(N=20)	(N=38)	(N=20)	(N=6)	(N=21)
LR (0/1)	6	0	7	8	0	0	7
	(8.7)	(0)	(35)	(21.1)	(0)	(0)	(33.3)
L-IR (2)	13	0	5	4	0	0	5
	(18.8)	(0)	(25)	(10.5)	(0)	(0)	(23.8)
H-IR (3)	38	11	4	14	16	4	5
	(55.1)	(78.6)	(20)	(36.8)	(80)	(66.7)	(23.8)
HR (4/5)	12	3	4	12	4	2	4
	(17.4)	(21.4)	(20)	(31.6)	(20)	(33.3)	(19)

Prognostic Score (%) Table 8	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
PIT(n=186)	(N=68)	(N=14)	(N=20)	(N=37)	(N=20)	(N=6)	(N=21)
LR (0)	2	1	4	2	0	0	0
	(2.9)	(7.1)	(20)	(5.4)	(0)	(0)	(0)
L-IR (1)	9	0	6	8	0	0	8
	(13.2)	(0)	(30)	(21.6)	(0)	(0)	(38.1)
H-IR (2)	24	7	8	16	4	3	10
	(35.3)	(50)	(40)	(43.2)	(20)	(50)	(47.6)
HR (3/4)	33	6	2	11	16	3	3
	(48.5)	(42.9)	(10)	(29.7)	(80)	(50)	(14.3)

Prognostic Score (%) Table 8	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
mPIT(n=137)	(N=68)	(N=14)	(N=20)	(N=37)	(N=20)	(N=6)	(N=21)
LR (0/1)	2	1	4	2	0	0	0
	(2.9)	(7.1)	(20)	(5.4)	(0)	(0)	(0)
IR (2)	9	0	6	8	0	0	8
	(13.2)	(0)	(30)	(21.6)	(0)	(0)	(38.1)
HR (3/4)	24	7	8	16	4	3	10
	(35.3)	(50)	(40)	(43.2)	(20)	(50)	(47.6)

Prognostic Score (%) Table 8	**PTCL NOS**	**AITL**	**ALCL (ALK +)**	**ALCL (ALK -)**	**HSTCL**	**ATLL**	**NKTCL**
IPTCLP (n=232)	(N=83)	(N=18)	(N=21)	(N=50)	(N=20)	(N=10)	(N=30)
LR (0)	7 (8.4)	0 (0)	9 (42.9)	10 (20)	0 (0)	0 (0)	7 (23.3)
L-IR (1)	42 (50.6)	11 (61.1)	8 (38.1)	24 (48)	0 (0)	4 (40)	14 (46.7)
H-IR (2)	30 (36.1)	6 (33.3)	3 (14.3)	16 (32)	17 (85)	5 (50)	9 (30)
HR (3)	4 (4.8)	1 (5.6)	1 (4.8)	0 (0)	3 (15)	1 (10)	0 (0)

(IPI- international prognostic index, PIT- Prognostic index for T cell lymphoma, mPIT- Modified PIT, IPTCLP- International peripheral T cell lymphoma project, LR- Low risk, IR- intermediate risk, HR- High risk, L-IR- low intermediate risk, H-IR- High Intermediate risk)

J) NK/T cell lymphoma prognostic index (NKPI) for NK/T cell lymphoma

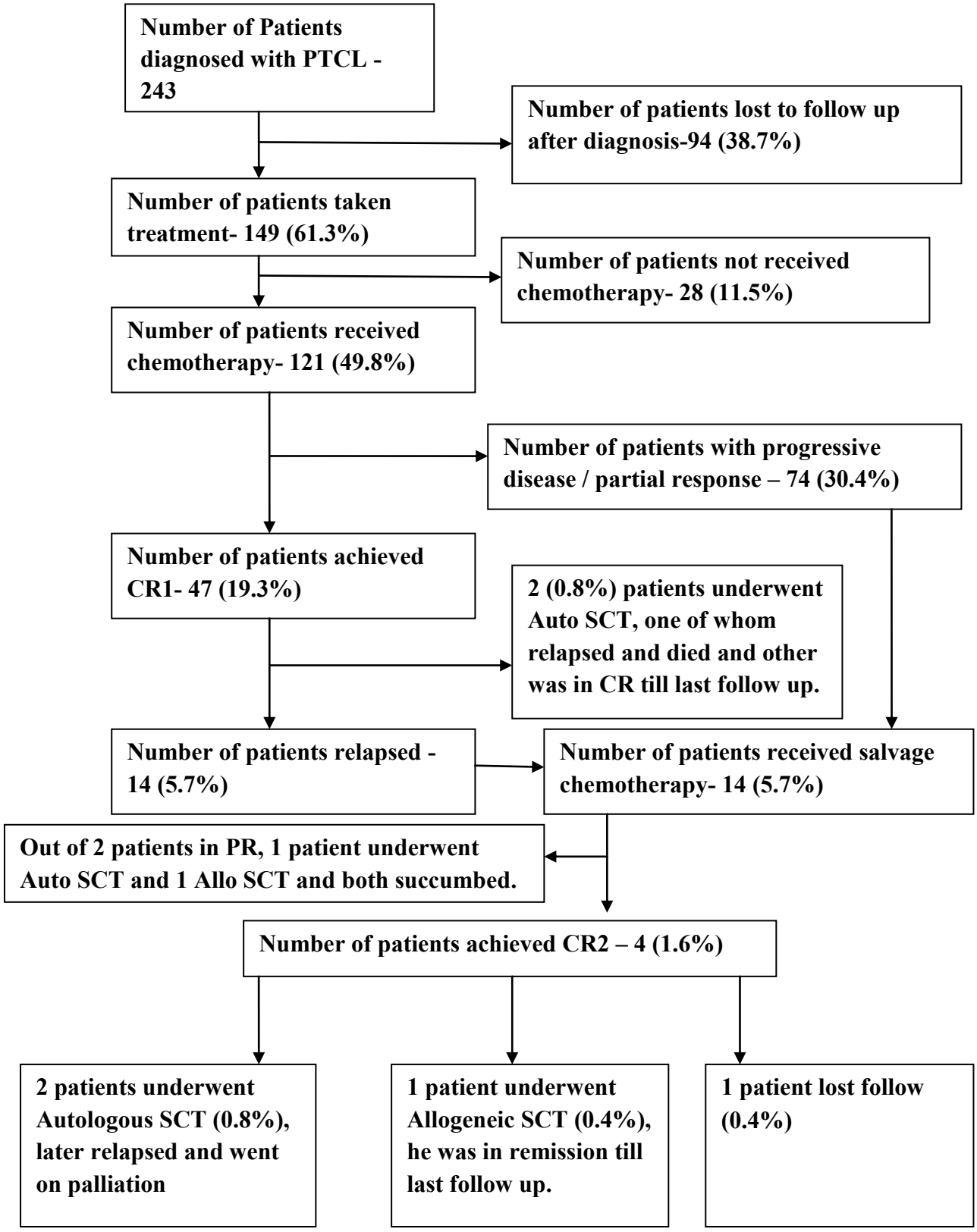
(Table 9) –

Prognsotic scores	**Risk category** **(Total score)**	**N (%)**
NKPI (n=21)	Low risk (0) Low intermediate risk (1) High intermediate risk (2) High risk (3/4)	1 (4.8) 5 (23.8) 6 (28.6) 9 (42.9)

K) Prognostic index for Angioimmunoblastic T cell Lymphoma (PIAI) (Table 10)-

Prognsotic scores	**Risk category** **(Total score)**	**N (%)**
PIAI (n =17)	Low Risk (0/1) High Risk (2-5)	3 (17.6) 14 (82.4)

L) <u>Peripheral T cell lymphoma flowchart-</u>



(CR- Complete remission, Allo- Allogeneic, Auto- Autologous, SCT-Stem cell transplant)

M) Treatment related characteristics (Table -11)

Variables	**N (%)/ Median (Range)**
First line chemotherapy used (n = 121)	
CHOP +/- RT	99 (81.8)
CHOEP	1 (1.7)
CVP	15 (12.4)
DA-EPOCH	1 (0.8)
ALL protocol	2 (1.7)
Cyclophosphamide and Dexamethasone	2 (1.7)
Neutropenic fever (n = 105)	
Yes	50 (47.6)
No	55 (52.4)
Hospitalisation (n=109)	
Yes	48 (44)
No	61 (56)

G-CSF support required (n=107)	
Yes	68 (63.6)
No	39 (36.4)

(C- Cyclophosphamide, H- Adriamycin, O/V- Vincristine, E- Etoposide, P- Prednislone, DA- Dose adjusted, RT- Radiotherapy, ALL- Acute lymphoblastic leukemia, G-CSF- Granulocyte colony stimulating factor)

N) Univariate analysis of adverse effects of patient characteristics on overall survival (OS) and event free survival EFS (Table- 12).

Variables	N (%)	RR (OS) (95% CI)	P-value (OS)	RR (EFS) (95% CI)	P-value (EFS)
Age (years) (n= 121)					
≥ 60	12 (10)	1.45	0.358	1.11	0.797
<60	109 (90)	(0.66-3.17)		(0.51-2.42)	
Sex (n= 121)					
Female	26 (21.5)	1.77	**0.041**	1.47	0.160
Male	95 (78.5)	(1.02-3.06)		(0.86-2.51)	
B symptoms (n= 120)					
Yes	96 (80)	1.65	0.132	1.67	0.099
No	26 (20)	(0.86-3.15)		(0.91-3.03)	
Fever at diagnosis (n= 120)					
Yes	80 (66.7)	1.52	0.125	1.66	0.051
No	40 (33.3)	(0.89-2.60)		(1.00-2.78)	
Hb (gm %) (n= 121)					
< 11	55 (45.5)	1.66	**0.04**	1.48	0.083
≥ 11	66 (54.5)	(1.02-2.70)		(0.92-2.38)	

Univariate analysis of adverse effects of patient characteristics on overall survival (OS) and event free survival EFS (Table- 12 continued).

Variables	N (%)	RR (OS) (95% CI)	P-value (OS)	RR (EFS) (95% CI)	P-value (EFS)
Serum LDH (n=121)					
>460	99 (81.8)	1.28	0.433	1.30	0.376
≤460	22 (18.2)	(0.69-2.35)		(0.73-2.34)	
Bone marrow (n=119)					
Involved	34 (28.6)	1.74	**0.037**	1.74	**0.029**
Not involved	85 (71.4)	(1.04-2.93)		(1.06-2.87)	
Stage (n=121)					
III-IV	80 (66.1)	1.41	0.205	1.37	0.220
I-II	41 (33.9)	(0.83-2.41)		(0.83-2.26)	
Platelet [x10^9/L] (n= 121)					
< 150	38 (31.4)	1.21	0.468	1.48	0.108
≥ 150	83 (68.6)	(0.73 -2.00)		(0.92 -2.38)	
Ki67 (n= 121)					
≥ 75	74 (61.2)	1.38	0.219	1.13	0.605
< 75	47 (38.8)	(0.83-2.29)		(0.71-1.82)	

Univariate analysis of adverse effects of patient characteristics on overall survival (OS) and event free survival EFS (Table- 12 continued).

Variables	N (%)	RR (OS) (95% CI)	P-value (OS)	RR (EFS) (95% CI)	P-value (EFS)
IPI (n= 116)					
Low risk (0/1)	25 (21.6)	1		1	
Low intermediate (2)	20 (17.2)	1.61 (0.46-2.94)	1.161	0.85 (0.35-2.06)	0.722
High intermediate (3)	51 (44)	2.16 (1.08-4.42)	**0.035**	1.89 (0.99-3.58)	0.053
High risk (4/5)	20 (17.2)	3.75 (1.66- 8.43)	**0.001**	2.96 (1.39- 6.31)	**0.005**
IPTCLP (n= 119)					
Low risk (0)	21 (17.6)	1		1	
Low intermediate (1)	60 (50.4)	3.10 (1.30-7.41)	**0.011**	2.70 (1.25-5.83)	**0.011**
High intermediate (2)	35 (29.4)	3.98 (1.63-9.76)	**0.003**	3.44 (1.55-7.65)	**0.002**
High risk (3)	3 (2.5)	3.86 (0.78- 19.27)	0.099	2.72 (0.58- 12.86)	0.207

Variables	N (%)	RR (OS) (95% CI)	P-value (OS)	RR (EFS) (95% CI)	P-value (EFS)
PIT (n= 119)					
Low risk (1)	7 (5.9)	1		1	
Low intermediate (2)	28 (23.5)	2.39 (0.53-10.68)	0.256	1.91 (0.55-6.63)	0.306
High intermediate (3)	48 (40.3)	3.56 (0.84-15.03)	0.085	2.46 (0.74-8.13)	0.140
High risk (4)	33 (27.7)	7.25 (1.69-30.98)	**0.008**	5.01 (1.49-16.83)	**0.009**
mPIT (n= 77)					
Low risk (0/1)	11 (5.9)	1		1	
Intermediate (2)	40 (23.5)	3.06 (0.89-10.5)	0.076	2.63 (0.90-7.68)	0.077
High risk (3/4)	26 (40.3)	6.32 (1.83-21.85)	**0.004**	3.98 (1.39-11.83)	**0.013**

(The P values shown in **bold** suggest presence of statistical significant correlation. RR- relative risk, LFT- Liver function tests, IPI- International prognostic index, PIT- Prognostic index for T cell lymphoma, mPIT- Modified prognostic index for T cell lymphoma, IPTCLP- International peripheral T cell lymphoma project score.)

O) Multivariate analysis of adverse effects of patient characteristics on overall survival (OS) and event free survival EFS (Table- 13).

The patient characters which were found to be statistically significant are taken for multivariate analysis by forward stepwise method. The table 9 shows the patient characteristics which affect adversely on OS and EFS and are statistical significant.

Variables	**RR (OS) (95% CI)**	**P-value (OS)**	**RR (EFS) (95% CI)**	**P-value (EFS)**
PIT (n= 119)				
Low risk (1)	1		1	
Low intermediate (2)	2.13 (0.47 -9.60)	0.326	1.92 (0.55 -6.64)	0.304
High intermediate (3)	2.81 (0.65- 12.17)	0.166	2.47 (0.75- 8.16)	0.138
High risk (4)	6.742 (1.57-28.97)	**0.010**	4.88 (1.45-16.44)	**0.010**
Sex (n= 121)				
Female	1.95 (1.08-3.51)	**0.027**		
Male				

(LFT- Liver function tests, IPI- International prognostic index, PIT- Prognostic index for T cell lymphoma, mPIT- Modified prognostic index for T cell lymphoma)

P) Survival statistics:

The overall survival (OS) and the event free survival (EFS) were calculated using the Kaplan-Meier estimates. All patients (121 out of total 243) started on treatment were considered evaluable for response and outcome. Overall survival (OS) was measured from the start of therapy up to the date of death (from any cause). For the purpose of this analysis, patients who had relapsed or had progressive disease during therapy and then subsequently lost to follow up or were sent for palliative care were considered as dead, 30 days after the last follow up. Event-free survival (EFS) was calculated from the start of therapy up to the first adverse event, i.e. relapse or progression, secondary malignancy or death.

a) <u>OS and EFS for total cohort of patients (Figure 13a and 13b) -</u>

The 5 year overall survival of total cohort of patients with PTCL who got treatment (n = 121) was 30.4 ± 5.5 %. The EFS at 5 years for the same cohort was 28.5 ± 4.7 %.

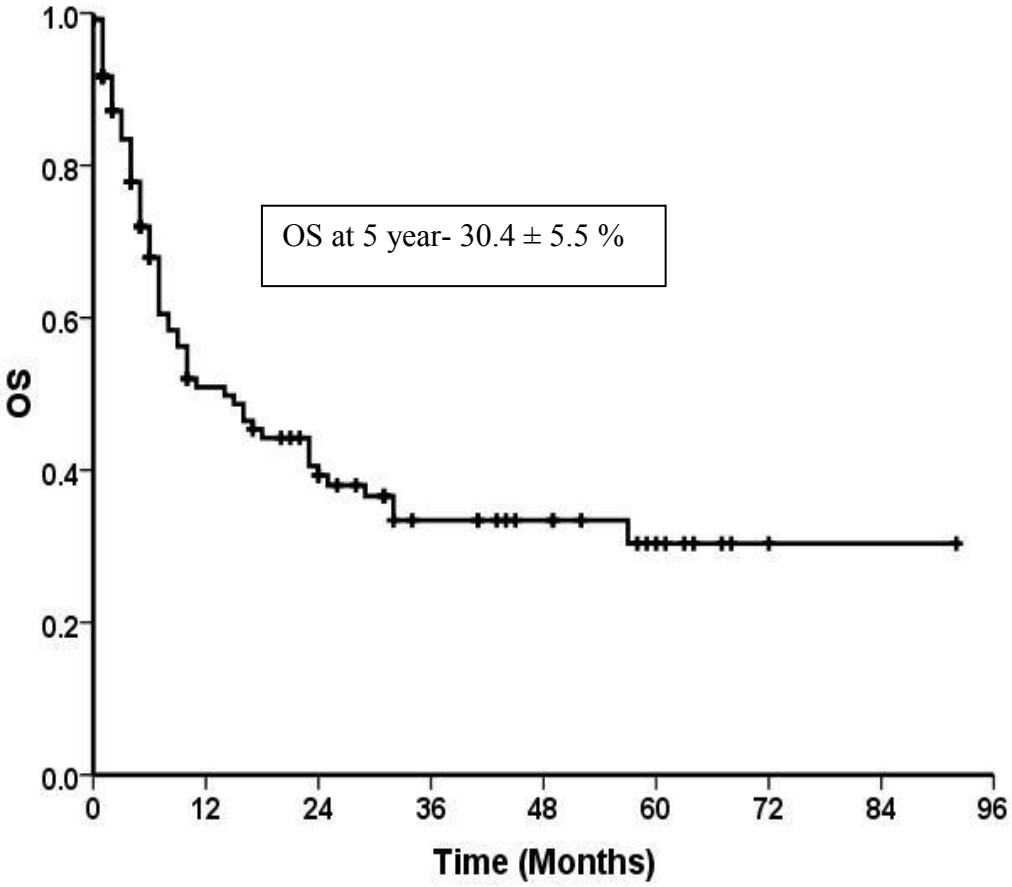


Figure-13a- OS for total cohort of PTCL. (n=121)

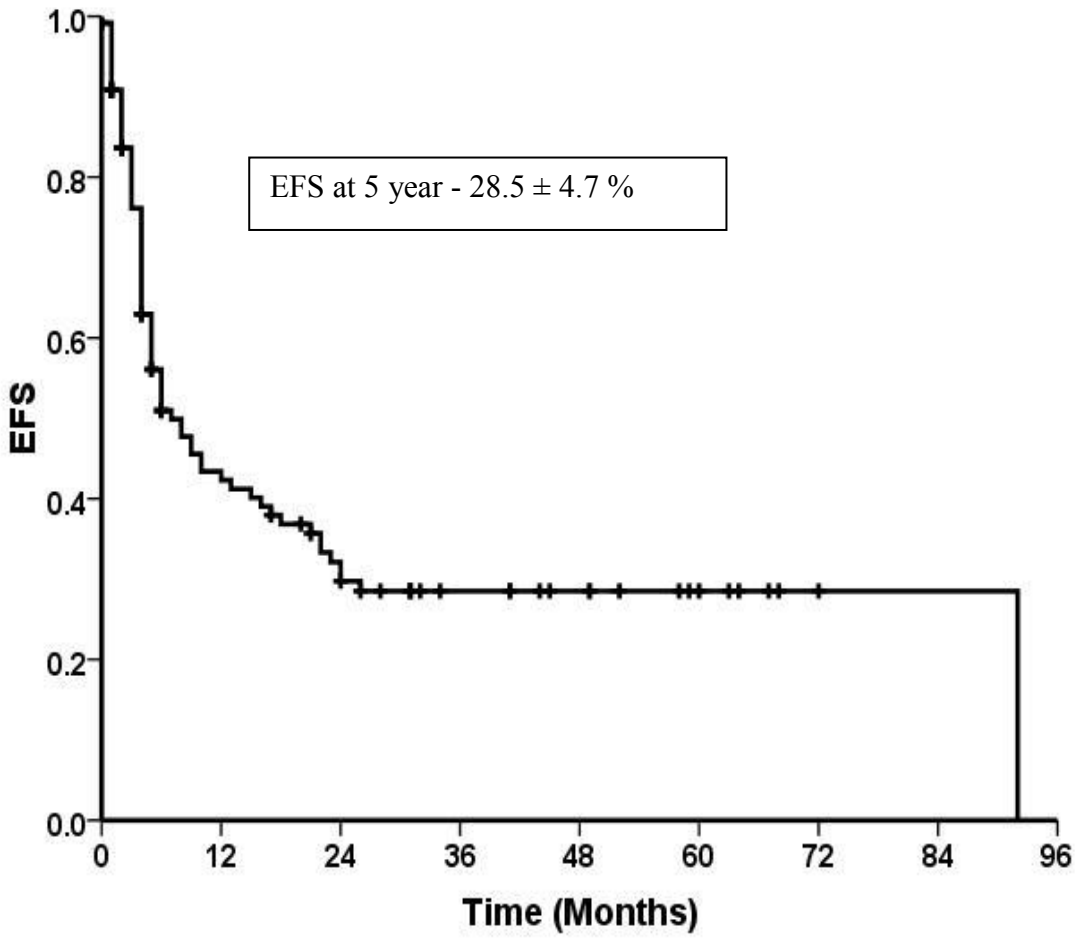


Figure-13b- EFS for total cohort of PTCL. (n=121)

b) <u>OS and EFS for as per histological subtypes of PTCL- (Figure 14a and 14b) –</u>

The OS and EFS for patients with PTCL according to histological subtypes is given in **table 14.** (n =121)

Histological subtype	OS	EFS
PTCL- NOS (N=44)	23.1 ± 7.8% at 5 years	22.1 ± 7.8% at 5 years
AITL (N=7)	53.3 ± 24.8% at 43 months	22.9 ± 19.7% at 28 months
ALCL (ALK positive) (N=18)	59.0 ± 11.9% at 5 years	53.1 ± 12.1% at 5 years
ALCL (ALK negative) (N=24)	47.2 ± 11.9% at 5 years	37.7 ± 11.4% at 5 years
HSTCL (N=7)	0 % at 23 months	0 % at 22 months
ATLL (N=2)	50.0 ± 35.4% at 54 months	50 ± 35.4% at 52 months
NK/T cell lymphoma (N=18)	8 ± 7.6% at 5 years	8.2 ± 7.6% at 5 years

(PTCL- NOS- Peripheral T cell lymphoma not otherwise specified, AITL- Angioimmunoblastic T cell lymphoma, ALCL- Anaplastic large cell lymphoma, HSTCL- Hepatospenic T cell lymphoma, ATLL- Adult T Lymphoma Leukemia)

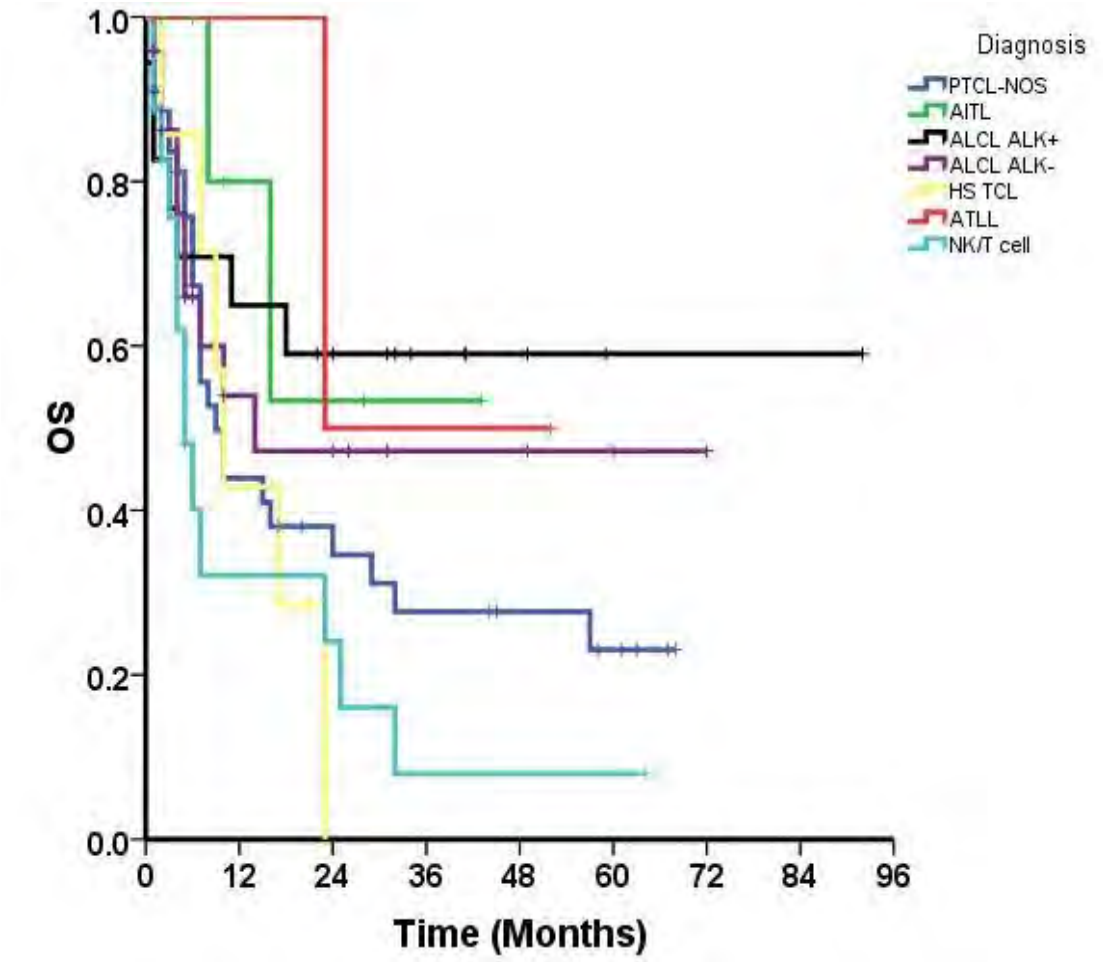


Figure 14a- OS of PTCL as per histological subtypes.

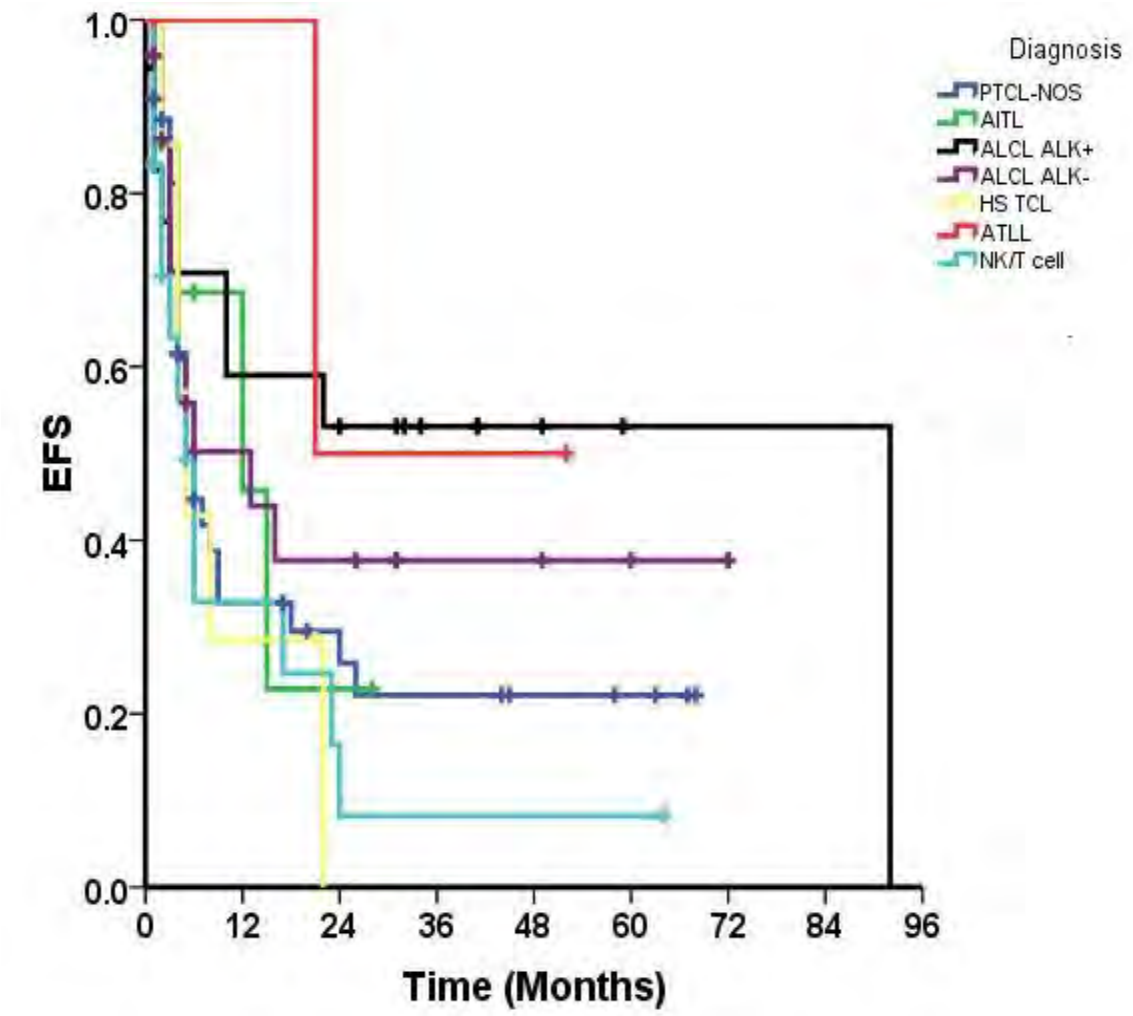


Figure 14b- EFS of PTCL as per histological subtypes

c) <u>5 year OS and EFS for as per prognostic risk categories (Table-15) – (n= 121)</u>

Prognostic score	**OS (5 year)**	**P value (OS)**	**EFS (5 year)**	**P value (EFS)**
IPI (Fig.-15a,15b)				
Low risk (0/1) (N=25)	52.5 ± 11.6%	**0.002**	41.8 ± 10.7%	**0.003**
Low intermediate (2) (N= 20)	51.0 ± 12.7%		52.0 ± 12.6%	
High intermediate (3) (N=50)	17.4 ± 8.6%		20.0 ± 6.4%	
High risk (4/5) (N= 20)	7.3 ± 6.9%		8.6 ± 7.9%	
PIT (Fig-16a, 16b)				
Low risk (0) (N=7)	64.3 ± 21.0%	**0.000**	57.1 ± 18.7%	**0.001**
Low intermediate (1) (N= 28)	51.1 ± 10.4%		40.3 ± 10.0%	
High intermediate (2) (N=48)	31.2 ± 7.8%		30.0 ± 7.6%	
High risk (3/4) (N= 33)	12.2 ± 7.3% at 57 months		7.4 ± 6.4% at 52 months	

mPIT (Fig-17a, 17b) Low risk (0/1) (N=10) Intermediate risk (2) (N= 39) High risk(3/4) (N=26)	 68.6 ± 15.1% 37.7 ± 9.4% 0%	**0.002**	 58.9 ± 16% 30.6 ± 8.6% 12.1 ± 7.8% at 52 months	**0.021**
IPTCLP (Fig- 18a, 18b) Low risk (0) (N=17) Low intermediate (1) (N= 60) High intermediate (2) (N=35) High risk (3) (N= 3)	 61.3 ± 12.8% 24.4 ± 7.8% 19.8 ± 7.7% 33.3 ± 27.2% at 21 months	**0.012**	 53.3 ± 12.1% 23.4 ± 6.4.% 19.8 ± 7.5% 33.3 ± 27.2% at 57 months	**0.012**

(IPI- International prognostic index, PIT- Prognostic index for T cell lymphoma, mPIT- Modified prognostic index for T cell lymphoma, IPTCLP- International peripheral T cell lymphoma project score)

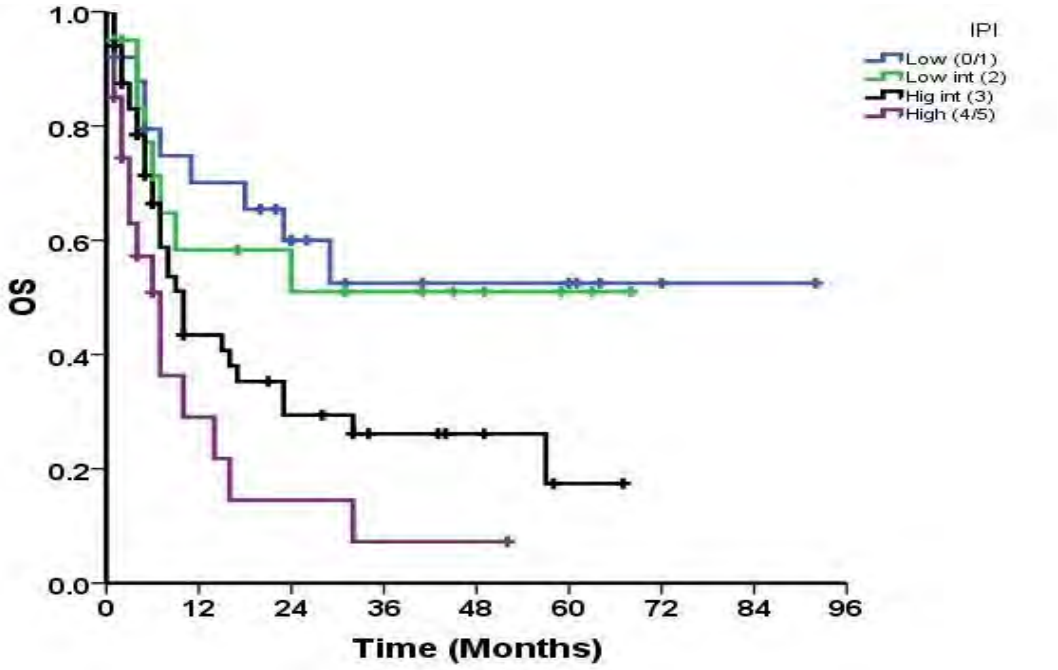


Figure 15a - OS by International prognostic index (IPI)

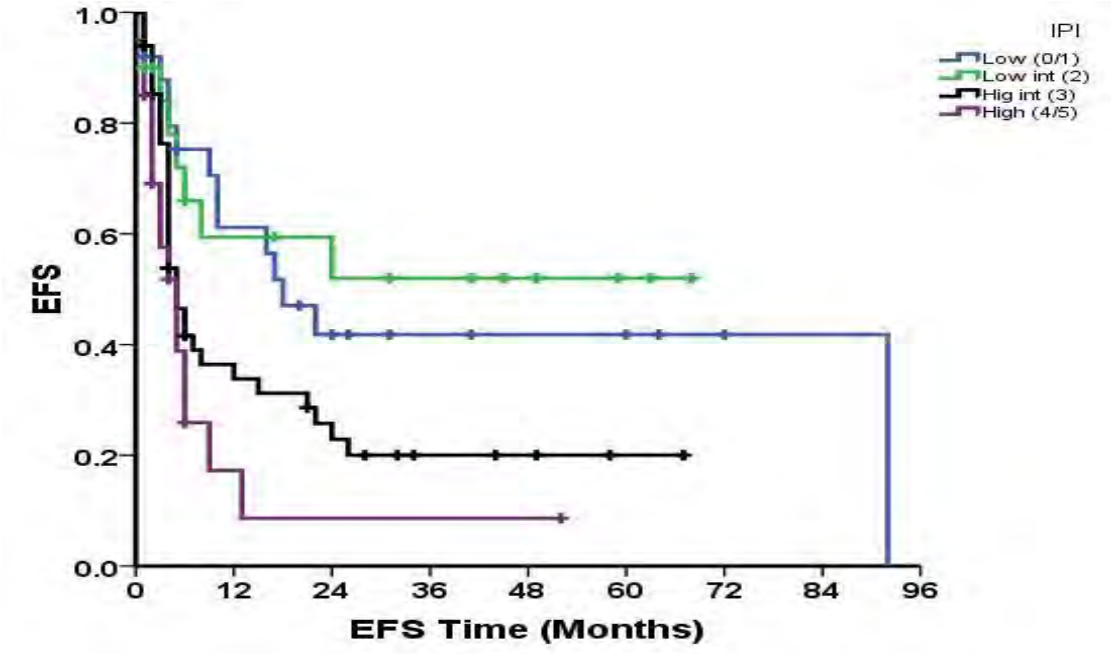


Figure 15b - EFS by International prognostic index (IPI)

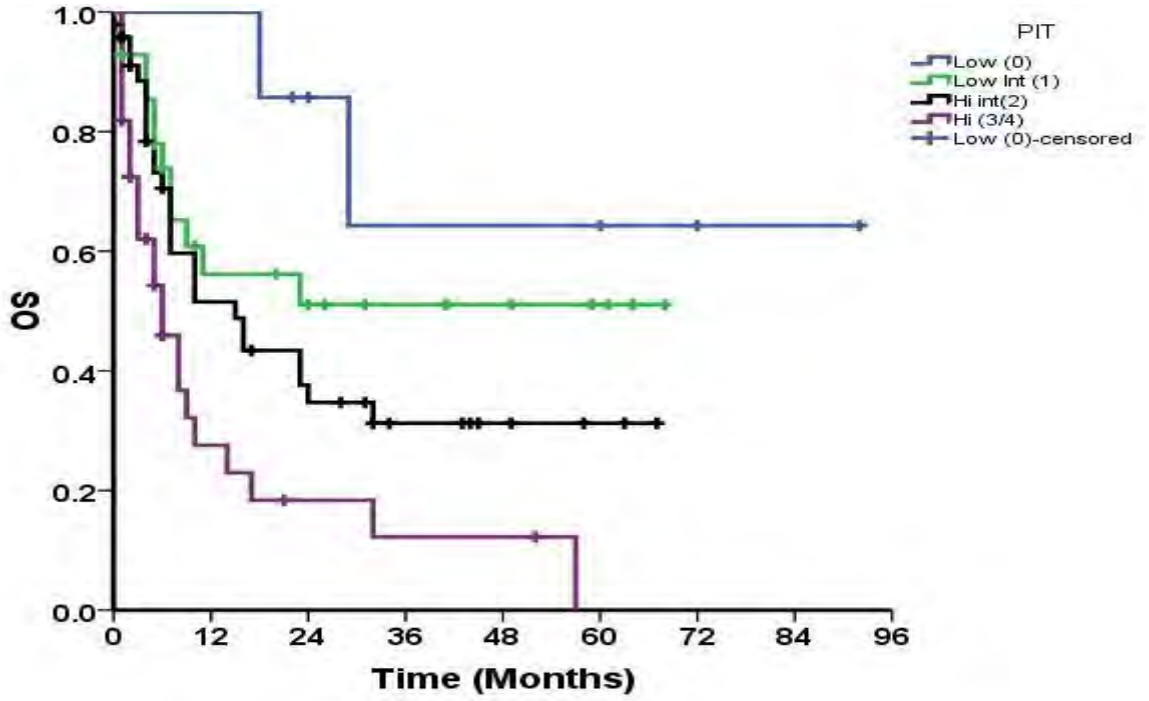


Figure 16a – OS by Prognostic index for T cell lymphoma (PIT)

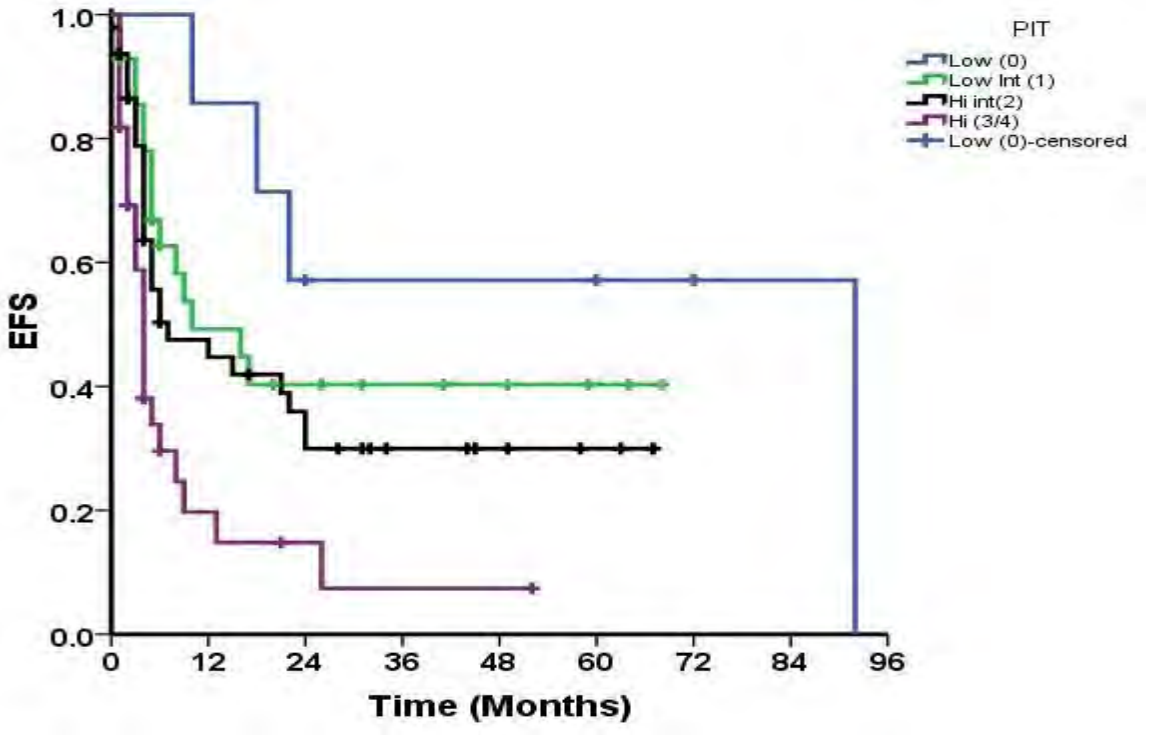


Figure 16b – EFS by Prognostic index for T cell lymphoma (PIT)

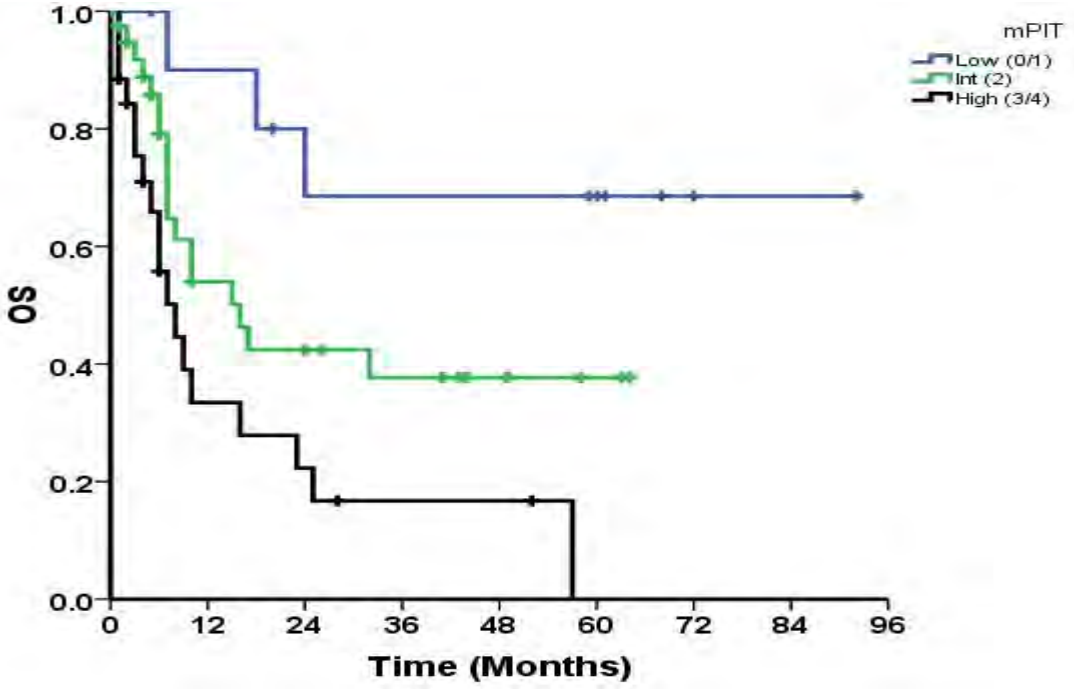


Figure 17a – OS by Modified prognostic index for T cell lymphoma (mPIT)

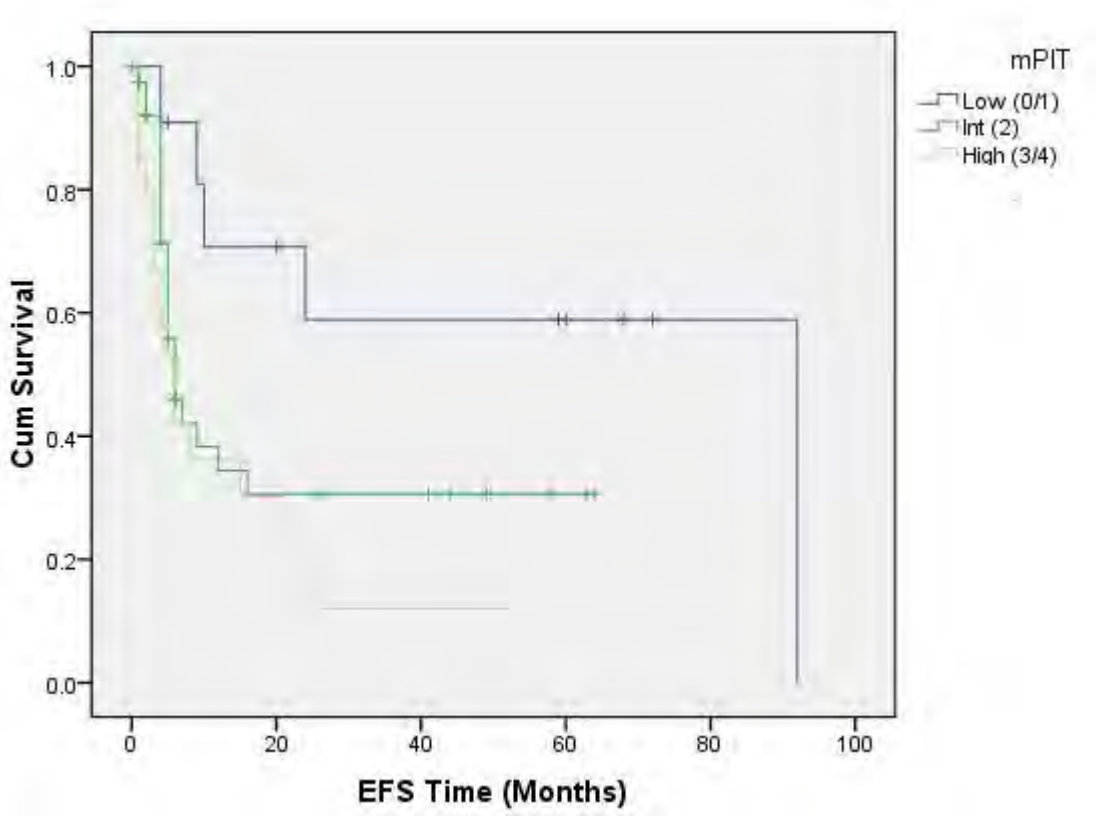


Figure 17b – OS by Modified prognostic index for T cell lymphoma (mPIT)

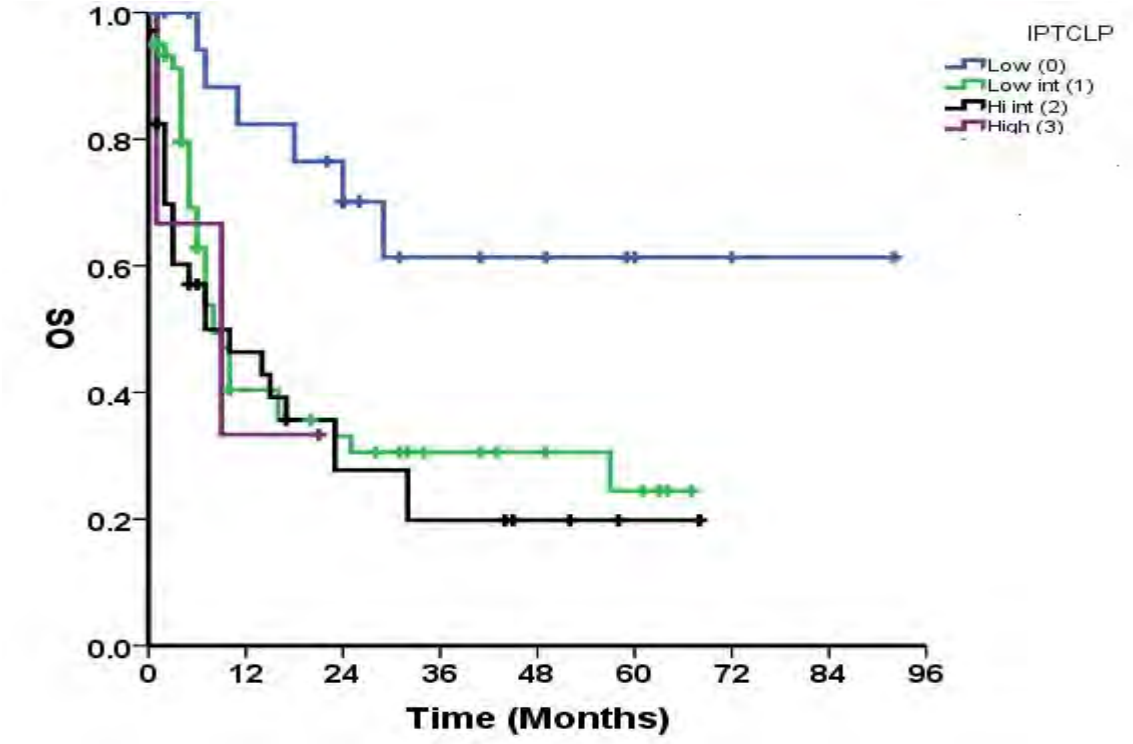


Figure 18a - OS by International peripheral T cell lymphoma project score (IPTCLP)

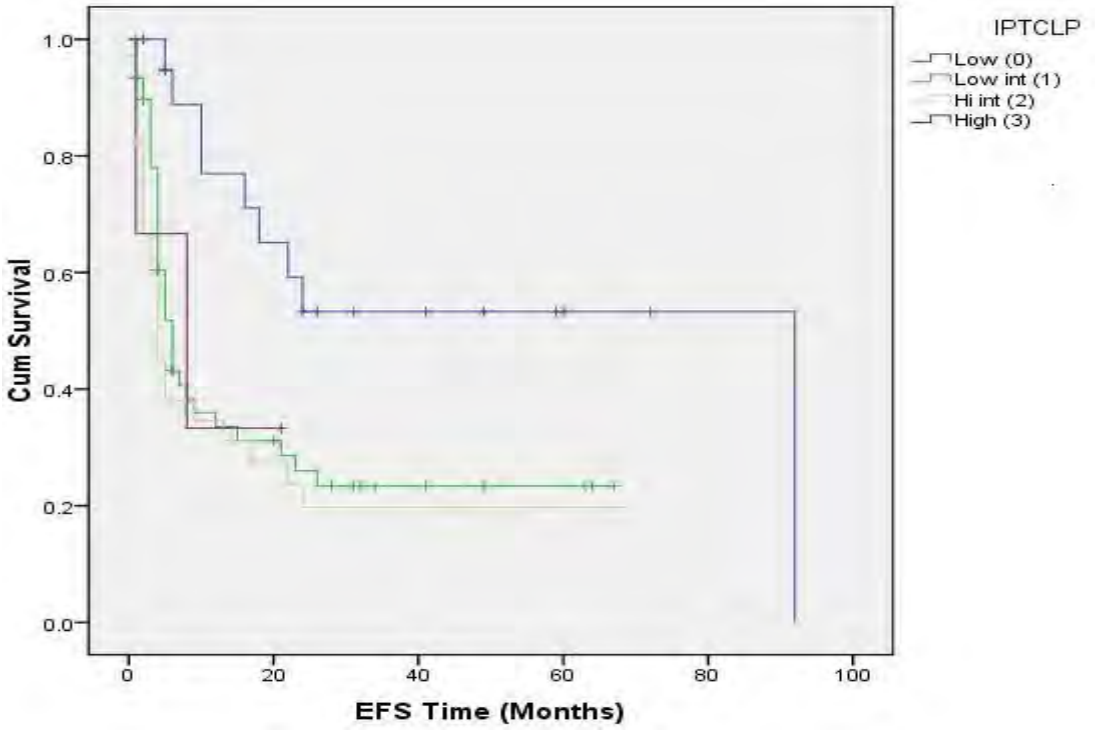


Figure 18b - EFS by International peripheral T cell lymphoma project score (IPTCLP)

DISCUSSION

Between January 2007 and December 2012, there were a total of 243 adult patients (age ≥18 years) diagnosed to have Peripheral T cell lymphoma whose data could be retrieved from hospital records.

In the present study majority of patients were from eastern part of India (58.8%), with West Bengal being most common state (32.1%). This observation was found to be concordant with the finding that PTCL is more common in eastern Asian countries compared to western countries (2). But this finding may be just a bias as majority of patients at our institute come from Eastern part of the country. Most common histological subtype was found to be PTCL- NOS (35.8%) followed by ALK negative ALCL (21.4%), NK/T cell lymphoma (13.6%), ALK positive ALCL (8.6%), HSTCL and AITL (8.2%) and least common being ATLL (4.1%). It is found that the occurrence of different histological subtypes vary in between western and far eastern countries. PTCL NOS was most common subtype in all regions as per International peripheral T cell lymphoma project (IPTCLP). The second most common histological subtype that was found to be ALK negative ALCL which is discordant with published literature. AITL is second most common subtype in western countries while ATLL and NK/T cell lymphoma are second most common histological subtypes in far eastern countries (2). In the present study the majority (45.68%; n=111) of the patients belonged to the age group 41-60 years, with a median age of 45 years (range: 18-80 years) which is lesser than that in IPTCLP data (62 years) (2). Median age at diagnosis for PTCL-NOS was 45 years (18-80 years), AITL was 53 years (18-74 years), ALK positive ALCL was 30 years (18-68 years), ALK negative ALCL was 50 years (18-78 years), HSTCL was 33 years (18-69 years), ATLL was 59 years (51-72 years) and 41 years (19-73 years) for NK/T cell lymphoma. The median age of diagnosis was concordant with published literature

for ALK positive ALCL and HSTCL, with younger age of presentation ,while the diagnosis was one decade earlier for rest of the subtypes (2). In the present study, 202 patients were males (81.3%). A similar observation of male preponderance was reported by Vose et al (2). We also found that most common presenting symptom was fever (67.7%, 160 of 236 patients). Median duration of symptoms before diagnosis was found to be 3 months (range- 0-48) and time from diagnosis to starting of treatment was 15 days (range- 0-247).

Haemogram showed median haemoglobin of 10.9gm/dl (10-20 gm/dl) and median platelet count was 1.9 x 10^9/L (0.04 x 10^9/L - 6.68 x 10^9/L) for total cohort of patients. B symptoms were seen in 78.5% cases with fever being most common B symptom (65.8%). Only 4 (1.6%) cases had bulk disease at diagnosis with 13cm (10-20 cm) being median size of the bulky lesion. Bone marrow involvement was found in 36.9% cases (73 of 198 patients). HSTCL had bone marrow involvement in 90% cases (18 of 20 patients) and least common with ALCL (ALK positive 0%, ALK negative 20%), this was comparable with Vose et al study (2). LDH was found to be elevated in 85% cases (175 of 206 patients). Stage III/IV disease was found in 74 % cases (148 of 200 patients). All patients with AITL, HSTCL and ATLL had stage III/IV disease. While only 25% cases (6 of 24 patients) had stage III/IV disease in NK/T cell lymphoma. We found that the incidence of higher stage disease was higher when compared to IPTCLP (2). Majority of NK/T cell lymphoma, nasal type, had limited stage disease, which was concordant with other studies (2, 83). 78.3 % (188 of 240 patients) had ECOG performance status more than or equal to 2. Associated autoimmune manifestation in the form of autoimmune haemolytic anemia was found in 4 cases (1.6%) and immune thrombocytopenia in only one patient (0.4%). Evidence of haemophagocytosis was seen in 10 of 243 cases (4.1%). Hypergammaglobulinemia was found in 4 of 20 cases of AITL (20%), compared to a earlier published study were it was seen in 30% cases (22).

The distribution of the patients according to the risk group after applying the different scores is given in Table 7 and Table 8. Low risk category by IPI, PIT, mPIT and IPTCLP was in 11.5% (28 of 188 patients), 9% (9 of 186 patients), 6.2% (15 of 137 patients) and 14.2% (33 of 232 patients) respectively. The intermediate category by IPI, PIT, mPIT and IPTCLP is in 49 % (119 of 188 patients), 42.4% (103 of 186 patients), 27.2% (66 of 137 patients) and 81.5% (189 of 232 patients) respectively. In the high-risk group, the IPTCLP score allocated only 10 of 232 cases (4.3%). These results were comparable with an similar study done to compare the prognostic scores in PTCL (7). For NK/T cell lymphoma, risk categorisation by NKPI was better with only 4.8 % cases (1 of 21 patients) in low risk category, 23.8% (5 of 21 patients) in low intermediate, 28.6% (6 of 21 patients) in high intermediate and 42.9% (9 of 21 patients) in high risk groups, while by IPI, only 19% (4 of 21 patients) cases were in high risk category. Considering poor outcome of patients with NK/T cell lymphoma even with early stage disease in majority of the patients, NKPI was found to be the better score compared to others for this group of patients. These results were comparable to the study published by Lee et al (23). Using PIAI as prognostic score for AITL, 17.6% (3 of 17 patients) were in low risk category and 82.4% (14 of 17 patients) were in high risk category. This distribution of the cases was concordant with previous study where 70% cases were belonged to high risk cases (22). In view of small number of patients with AITL and NK/T cell lymphoma receiving treatment, survival difference depending on PIAI and NKPI could not be assessed in the present study.

Out of total 243 patients, 149 patients (61.3%) received treatment (see flowchart-L). Chemotherapy was administered in 121 patients. 81.8% cases (99 of 121 patients) were treated with CHOP chemotherapy as first line chemotherapy. Neutropenic fever developed in 47.6% cases (50 of 105 patients) and hospital admission was required in 44% (48 of 109 patients) cases. Growth factor support was used to augment neutrophil recovery in 63.6%

cases (68 of 107 patients). 47 out of 121 patients who received first line chemotherapy went into complete remission (CR) (38.8%). Two patients underwent autologous stem cell transplant (SCT) in first CR, one of whom was in CR till last follow up and other patient had relapse and succumbed to his illness. Out of total 88 patients who had relapse or had progressive disease, 14 received salvage chemotherapy. Out of two patients in partial remission (PR) post salvage chemotherapy, one had autologous SCT and other had allogeneic SCT and both patients succumbed. Four cases out of 14 went in CR 2 (28.6%). Two of them had autologous SCT. Both had relapse and were put on palliative treatment. One patient lost follow up in CR2. One patient underwent allogeneic SCT and he was in remission till last follow up. In view of only few patients undergoing SCT, statistical correlation of the transplant data could not be done in the present study.

For the entire cohort of the patients who received treatment (n=121), the 5 year OS and EFS was found to be 30.4% ± 5.5% and 28.5% ± 4.7% respectively (Figure-13a and 13b). The OS for ALK positive ALCL, ATLL, AITL, ALK negative ALCL, PTCL NOS, NK/T cell lymphoma and HSTCL was found to 59.0% ± 11.9% at 5 years, 50.0% ± 35.4% at 54 months, 53.3% ± 24.8% at 43 months, 47.2% ± 11.9% at 5 year, 23.1% ± 7.8% at 5 years, 8% ± 7.6% at 5 years and 0% at 23 months respectively (See figure 14a). Similarly EFS for ALK positive ALCL, ATLL, AITL, ALK negative ALCL, PTCL NOS, NK/T cell lymphoma and HSTCL was found to 53.1% ± 12.1% at 5 years, 50% ± 34.4% at 52 months, 22.9% ± 19.7% at 28 months, 37.7% ± 11.4 % at 5 years, 22% ± 7.8% at 5 years, 8.2% ± 7.6% at 5 years and 0% at 22 months respectively (See figure 14b). These results of our study were comparable to IPTCLP in which best prognostic group was ALK positive ALCL and worst surviving were the patients with HSTCL (2).

OS and EFS estimation for total cohort was done depending on IPI, PIT, mPIT and IPTCLP risk groups. Highly significant difference in OS and EFS was noted with all the

prognostic scores. Patients with higher risk score of more than or equal to 3 were had poor outcome compared to lower risk categories (See Table 15, figures-15, 16, 17 and 18). This result was also comparable to the previous study comparing different prognostic scoring systems in PTCL (7).

Univariate Cox proportional hazard model was used to find out significant prognostic factors for survival among overall PTCL patients (Table: 11). Parameters of independent significance for poor overall survival were female sex, haemoglobin less than 11gm/dl, bone marrow involvement and higher risk score by IPI, PIT, mPIT and IPTCLP scoring systems. Bone marrow involvement and higher risk scores by above mentioned scoring systems were the parameters predicting poor EFS. These parameters were further taken for multivariate analysis by forward stepwise method (Table-13). Higher PIT score was found to have statistically significant inferior OS and EFS. Female sex was also associated with inferior OS on multivariate analysis. In view of small number of patients in the present study, this finding needs validation in larger prospective study. A similar study comparing different prognostic scores which was published earlier, found IPTCLP score as better prognostic score on multivariate analysis (7).

LIMITATIONS OF THE STUDY:

Retrospective study: limited available data due to non-retrievable records, intractability of patients due to loss of follow up.

CONCLUSION:

1. Peripheral T cell lymphomas are a diverse group of non Hodgkin lymphomas with poor overall outcome compared to their B cell counterparts.

2. With the exception of ALK positive ALCL which shows good outcomes with CHOP based chemotherapy, other subtypes do not respond well to this modality of treatment.

3. NKPI is better prognostic score for NK/T cell lymphoma as compared to IPI. Majority of patients were assigned lower risk category in IPI compared to NKPI in this group of patients who have overall dismal prognosis even with early stage disease.

4. All the prognostic scores developed for risk stratifying PTCL were found useful, but out of all, we found that PIT prognostic score was the best score for overall survival prediction on multivariate analysis. This finding needs further validation in a larger cohort of patients.

Bibliography

1. Swerdlow SH CE, Harris NL, Jaffe ES, Pileri SA, Stein H, Thiele J & , JW V. WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues. Lyon, France: WHO; 2008.

2. Vose J, Armitage J, Weisenburger D. International peripheral T-cell and natural killer/T-cell lymphoma study: pathology findings and clinical outcomes. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2008;26(25):4124-30. Epub 2008/07/16.

3. Armitage JO. The aggressive peripheral T-cell lymphomas: 2013. American journal of hematology. 2013;88(10):910-8. Epub 2013/10/01.

4. A clinical evaluation of the International Lymphoma Study Group classification of non-Hodgkin's lymphoma. The Non-Hodgkin's Lymphoma Classification Project. Blood. 1997;89(11):3909-18. Epub 1997/06/01.

5. Arora N, Manipadam MT, Nair S. Frequency and distribution of lymphoma types in a tertiary care hospital in South India: analysis of 5115 cases using the World Health Organization 2008 classification and comparison with world literature. Leukemia & lymphoma. 2013;54(5):1004-11. Epub 2012/09/14.

6. Anderson JR, Armitage JO, Weisenburger DD. Epidemiology of the non-Hodgkin's lymphomas: distributions of the major subtypes differ by geographic locations. Non-Hodgkin's Lymphoma Classification Project. Annals of oncology : official journal of the European Society for Medical Oncology / ESMO. 1998;9(7):717-20. Epub 1998/09/18.

7. Gutierrez-Garcia G, Garcia-Herrera A, Cardesa T, Martinez A, Villamor N, Ghita G, et al. Comparison of four prognostic scores in peripheral T-cell lymphoma. Annals of

oncology : official journal of the European Society for Medical Oncology / ESMO. 2011;22(2):397-404. Epub 2010/07/16.

8. Dearden C, Johnson R, Pettengell R, Devereux S, Cwynarski K, Whittaker S, et al. Guidelines for the Management of Mature T-cell and NKcell Neoplasms (Excluding cutaneous T-cell Lymphoma). BCSH guidlines. 2013.

9. Foss FM, Zinzani PL, Vose JM, Gascoyne RD, Rosen ST, Tobinai K. Peripheral T-cell lymphoma. Blood. 2011;117(25):6756-67. Epub 2011/04/16.

10. Morton LM, Wang SS, Devesa SS, Hartge P, Weisenburger DD, Linet MS. Lymphoma incidence patterns by WHO subtype in the United States, 1992-2001. Blood. 2006;107(1):265-76. Epub 2005/09/10.

11. Yang QP, Zhang WY, Yu JB, Zhao S, Xu H, Wang WY, et al. Subtype distribution of lymphomas in Southwest China: analysis of 6,382 cases using WHO classification in a single institution. Diagnostic pathology. 2011;6:77. Epub 2011/08/23.

12. Yoon SO, Suh C, Lee DH, Chi HS, Park CJ, Jang SS, et al. Distribution of lymphoid neoplasms in the Republic of Korea: analysis of 5318 cases according to the World Health Organization classification. American journal of hematology. 2010;85(10):760-4. Epub 2010/09/02.

13. Iqbal J, Weisenburger DD, Greiner TC, Vose JM, McKeithan T, Kucuk C, et al. Molecular signatures to improve diagnosis in peripheral T-cell lymphoma and prognostication in angioimmunoblastic T-cell lymphoma. Blood. 2010;115(5):1026-36. Epub 2009/12/08.

14. Carbone PP, Kaplan HS, Musshoff K, Smithers DW, Tubiana M. Report of the Committee on Hodgkin's Disease Staging Classification. Cancer research. 1971;31(11):1860-1. Epub 1971/11/01.

15. Lister TA, Crowther D, Sutcliffe SB, Glatstein E, Canellos GP, Young RC, et al. Report of a committee convened to discuss the evaluation and staging of patients with Hodgkin's disease: Cotswolds meeting. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 1989;7(11):1630-6. Epub 1989/11/01.

16. Storto G, Di Giorgio E, De Renzo A, Pizzuti LM, Cerciello G, Nardelli A, et al. Assessment of metabolic activity by PET-CT with F-18-FDG in patients with T-cell lymphoma. British journal of haematology. 2010;151(2):195-7. Epub 2010/08/26.

17. Cheson BD, Fisher RI, Barrington SF, Cavalli F, Schwartz LH, Zucca E, et al. Recommendations for initial evaluation, staging, and response assessment of Hodgkin and non-Hodgkin lymphoma: the Lugano classification. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2014;32(27):3059-68. Epub 2014/08/13.

18. A predictive model for aggressive non-Hodgkin's lymphoma. The International Non-Hodgkin's Lymphoma Prognostic Factors Project. The New England journal of medicine. 1993;329(14):987-94. Epub 1993/09/30.

19. Lopez-Guillermo A, Cid J, Salar A, Lopez A, Montalban C, Castrillo JM, et al. Peripheral T-cell lymphomas: initial features, natural history, and prognostic factors in a series of 174 patients diagnosed according to the R.E.A.L. Classification. Annals of oncology : official journal of the European Society for Medical Oncology / ESMO. 1998;9(8):849-55. Epub 1998/10/28.

20. Gallamini A, Stelitano C, Calvi R, Bellei M, Mattei D, Vitolo U, et al. Peripheral T-cell lymphoma unspecified (PTCL-U): a new prognostic model from a retrospective multicentric clinical study. Blood. 2004;103(7):2474-9. Epub 2003/12/03.

21. Went P, Agostinelli C, Gallamini A, Piccaluga PP, Ascani S, Sabattini E, et al. Marker expression in peripheral T-cell lymphoma: a proposed clinical-pathologic prognostic

score. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2006;24(16):2472-9. Epub 2006/04/26.

22. Federico M, Rudiger T, Bellei M, Nathwani BN, Luminari S, Coiffier B, et al. Clinicopathologic characteristics of angioimmunoblastic T-cell lymphoma: analysis of the international peripheral T-cell lymphoma project. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2013;31(2):240-6. Epub 2012/08/08.

23. Lee J, Suh C, Park YH, Ko YH, Bang SM, Lee JH, et al. Extranodal natural killer T-cell lymphoma, nasal-type: a prognostic model from a retrospective multicenter study. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2006;24(4):612-8. Epub 2005/12/29.

24. Gascoyne RD, Aoun P, Wu D, Chhanabhai M, Skinnider BF, Greiner TC, et al. Prognostic significance of anaplastic lymphoma kinase (ALK) protein expression in adults with anaplastic large cell lymphoma. Blood. 1999;93(11):3913-21. Epub 1999/05/26.

25. Ishida T, Inagaki H, Utsunomiya A, Takatsuka Y, Komatsu H, Iida S, et al. CXC chemokine receptor 3 and CC chemokine receptor 4 expression in T-cell and NK-cell lymphomas with special reference to clinicopathological significance for peripheral T-cell lymphoma, unspecified. Clinical cancer research : an official journal of the American Association for Cancer Research. 2004;10(16):5494-500. Epub 2004/08/26.

26. Nelson M, Horsman DE, Weisenburger DD, Gascoyne RD, Dave BJ, Loberiza FR, et al. Cytogenetic abnormalities and clinical correlations in peripheral T-cell lymphoma. British journal of haematology. 2008;141(4):461-9. Epub 2008/03/18.

27. Martinez-Delgado B, Cuadros M, Honrado E, Ruiz de la Parte A, Roncador G, Alves J, et al. Differential expression of NF-kappaB pathway genes among peripheral T-cell lymphomas. Leukemia. 2005;19(12):2254-63. Epub 2005/11/05.

28. Asano N, Suzuki R, Kagami Y, Ishida F, Kitamura K, Fukutani H, et al. Clinicopathologic and prognostic significance of cytotoxic molecule expression in nodal peripheral T-cell lymphoma, unspecified. The American journal of surgical pathology. 2005;29(10):1284-93. Epub 2005/09/15.

29. Cuadros M, Dave SS, Jaffe ES, Honrado E, Milne R, Alves J, et al. Identification of a proliferation signature related to survival in nodal peripheral T-cell lymphomas. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2007;25(22):3321-9. Epub 2007/06/20.

30. Weisenburger DD, Savage KJ, Harris NL, Gascoyne RD, Jaffe ES, MacLennan KA, et al. Peripheral T-cell lymphoma, not otherwise specified: a report of 340 cases from the International Peripheral T-cell Lymphoma Project. Blood. 2011;117(12):3402-8. Epub 2011/01/29.

31. Falini B, Pileri S, De Solas I, Martelli MF, Mason DY, Delsol G, et al. Peripheral T-cell lymphoma associated with hemophagocytic syndrome. Blood. 1990;75(2):434-44. Epub 1990/01/15.

32. Suchi T, Lennert K, Tu LY, Kikuchi M, Sato E, Stansfeld AG, et al. Histopathology and immunohistochemistry of peripheral T cell lymphomas: a proposal for their classification. Journal of clinical pathology. 1987;40(9):995-1015. Epub 1987/09/01.

33. Patsouris E, Noel H, Lennert K. Histological and immunohistological findings in lymphoepithelioid cell lymphoma (Lennert's lymphoma). The American journal of surgical pathology. 1988;12(5):341-50. Epub 1988/05/01.

34. Iqbal J, Wright G, Wang C, Rosenwald A, Gascoyne RD, Weisenburger DD, et al. Gene expression signatures delineate biological and prognostic subgroups in peripheral T-cell lymphoma. Blood. 2014;123(19):2915-23. Epub 2014/03/19.

35. Gisselbrecht C, Gaulard P, Lepage E, Coiffier B, Briere J, Haioun C, et al. Prognostic significance of T-cell phenotype in aggressive non-Hodgkin's lymphomas. Groupe d'Etudes des Lymphomes de l'Adulte (GELA). Blood. 1998;92(1):76-82. Epub 1998/06/25.

36. Melnyk A, Rodriguez A, Pugh WC, Cabannillas F. Evaluation of the Revised European-American Lymphoma classification confirms the clinical relevance of immunophenotype in 560 cases of aggressive non-Hodgkin's lymphoma. Blood. 1997;89(12):4514-20. Epub 1997/06/15.

37. Sonnen R, Schmidt WP, Muller-Hermelink HK, Schmitz N. The International Prognostic Index determines the outcome of patients with nodal mature T-cell lymphomas. British journal of haematology. 2005;129(3):366-72. Epub 2005/04/22.

38. Coiffier B, Brousse N, Peuchmaur M, Berger F, Gisselbrecht C, Bryon PA, et al. Peripheral T-cell lymphomas have a worse prognosis than B-cell lymphomas: a prospective study of 361 immunophenotyped patients treated with the LNH-84 regimen. The GELA (Groupe d'Etude des Lymphomes Agressives). Annals of oncology : official journal of the European Society for Medical Oncology / ESMO. 1990;1(1):45-50. Epub 1990/01/01.

39. Schmitz N, Trumper L, Ziepert M, Nickelsen M, Ho AD, Metzner B, et al. Treatment and prognosis of mature T-cell and NK-cell lymphoma: an analysis of patients with T-cell lymphoma treated in studies of the German High-Grade Non-Hodgkin Lymphoma Study Group. Blood. 2010;116(18):3418-25. Epub 2010/07/28.

40. Gallamini A, Zaja F, Patti C, Billio A, Specchia MR, Tucci A, et al. Alemtuzumab (Campath-1H) and CHOP chemotherapy as first-line treatment of peripheral T-cell lymphoma: results of a GITIL (Gruppo Italiano Terapie Innovative nei Linfomi) prospective multicenter trial. Blood. 2007;110(7):2316-23. Epub 2007/06/22.

41. Foss F S-SN, Goy A, Jacobsen E, Advani R, Smith M, Komrokji R, Pendergrass K, Bolejack V, Watts K , Acosta M. Denileukin Diftitox (ONTAK) Plus CHOP Chemotherapy

in Patients with Peripheral T-Cell Lymphomas (PTCL), the CONCEPT Trial. . Blood (ASH Annual Meeting Abstracts). 2007;110, 3449.

42. Kim SJ EH, Kim JS. The efficacy of bortezomib CHOP in patients with advanced stage T or NK/T cell lymphomas: The results of multicenter phase II study [Abstract]. Blood. 2010;Abstract #1791.

43. Escalon MP, Liu NS, Yang Y, Hess M, Walker PL, Smith TL, et al. Prognostic factors and treatment of patients with T-cell non-Hodgkin lymphoma: the M. D. Anderson Cancer Center experience. Cancer. 2005;103(10):2091-8. Epub 2005/04/09.

44. Corazzelli G FF, Marcacci G. Gemcitabine, ifosfamide, oxaliplatin (GIFOX) as first-line treatment in high-risk peripheral T-cell/NK lymphomas: A phase II trial [Abstract]. Blood. 2010;Abstract #2829.

45. Rodriguez J, Conde E, Gutierrez A, Arranz R, Leon A, Marin J, et al. The results of consolidation with autologous stem-cell transplantation in patients with peripheral T-cell lymphoma (PTCL) in first complete remission: the Spanish Lymphoma and Autologous Transplantation Group experience. Annals of oncology : official journal of the European Society for Medical Oncology / ESMO. 2007;18(4):652-7. Epub 2007/01/19.

46. Corradini P, Tarella C, Zallio F, Dodero A, Zanni M, Valagussa P, et al. Long-term follow-up of patients with peripheral T-cell lymphomas treated up-front with high-dose chemotherapy followed by autologous stem cell transplantation. Leukemia. 2006;20(9):1533-8. Epub 2006/07/28.

47. Wulf GG, Hasenkamp J, Jung W, Chapuy B, Truemper L, Glass B. Reduced intensity conditioning and allogeneic stem cell transplantation after salvage therapy integrating

alemtuzumab for patients with relapsed peripheral T-cell non-Hodgkin's lymphoma. Bone marrow transplantation. 2005;36(3):271-3. Epub 2005/06/07.

48. Frizzera G, Moran EM, Rappaport H. Angio-immunoblastic lymphadenopathy with dysproteinaemia. Lancet. 1974;1(7866):1070-3. Epub 1974/06/01.

49. Mourad N, Mounier N, Briere J, Raffoux E, Delmer A, Feller A, et al. Clinical, biologic, and pathologic features in 157 patients with angioimmunoblastic T-cell lymphoma treated within the Groupe d'Etude des Lymphomes de l'Adulte (GELA) trials. Blood. 2008;111(9):4463-70. Epub 2008/02/23.

50. Schlegelberger B, Feller A, Godde E, Grote W, Lennert K. Stepwise development of chromosomal abnormalities in angioimmunoblastic lymphadenopathy. Cancer genetics and cytogenetics. 1990;50(1):15-29. Epub 1990/11/01.

51. Lemonnier F, Couronne L, Parrens M, Jais JP, Travert M, Lamant L, et al. Recurrent TET2 mutations in peripheral T-cell lymphomas correlate with TFH-like features and adverse clinical parameters. Blood. 2012;120(7):1466-9. Epub 2012/07/05.

52. Cairns RA, Iqbal J, Lemonnier F, Kucuk C, de Leval L, Jais JP, et al. IDH2 mutations are frequent in angioimmunoblastic T-cell lymphoma. Blood. 2012;119(8):1901-3. Epub 2012/01/05.

53. Odejide O, Weigert O, Lane AA, Toscano D, Lunning MA, Kopp N, et al. A targeted mutational landscape of angioimmunoblastic T-cell lymphoma. Blood. 2014;123(9):1293-6. Epub 2013/12/19.

54. Pautier P, Devidas A, Delmer A, Dombret H, Sutton L, Zini JM, et al. Angioimmunoblastic-like T-cell non Hodgkin's lymphoma: outcome after chemotherapy in 33 patients and review of the literature. Leukemia & lymphoma. 1999;32(5-6):545-52. Epub 1999/02/27.

55. Tsatalas C, Margaritis D, Kaloutsi V, Martinis G, Kotsianidis I, Bourikas G. Successful treatment of angioimmunoblastic lymphadenopathy with dysproteinemia-type T-cell lymphoma with fludarabine. Acta haematologica. 2001;105(2):106-8. Epub 2001/06/16.

56. Sallah S, Wehbie R, Lepera P, Sallah W, Bobzien W. The role of 2-chlorodeoxyadenosine in the treatment of patients with refractory angioimmunoblastic lymphadenopathy with dysproteinemia. British journal of haematology. 1999;104(1):163-5. Epub 1999/02/23.

57. Sallah S, Wan JY, Nguyen NP. Treatment of refractory T-cell malignancies using gemcitabine. British journal of haematology. 2001;113(1):185-7. Epub 2001/05/01.

58. Gerlando Q, Barbera V, Ammatuna E, Franco V, Florena AM, Mariani G. Successful treatment of angioimmunoblastic lymphadenopathy with dysproteinemia-type T-cell lymphoma by combined methotrexate and prednisone. Haematologica. 2000;85(8):880-1. Epub 2000/08/16.

59. Feremans WW, Khodadadi E. Alpha-interferon therapy in refractory angioimmunoblastic lymphadenopathy. European journal of haematology. 1987;39(1):91. Epub 1987/07/01.

60. Hast R, Gustafsson B. Improved response to chemotherapy after interferon alpha-2b in angioimmunoblastic lymphadenopathy (AILD). European journal of haematology. 1991;46(1):51-2. Epub 1991/01/01.

61. Murayama T, Imoto S, Takahashi T, Ito M, Matozaki S, Nakagawa T. Successful treatment of angioimmunoblastic lymphadenopathy with dysproteinemia with cyclosporin A. Cancer. 1992;69(10):2567-70. Epub 1992/05/15.

62. Takemori N, Kodaira J, Toyoshima N, Sato T, Sakurai H, Akakura N, et al. Successful treatment of immunoblastic lymphadenopathy-like T-cell lymphoma with cyclosporin A. Leukemia & lymphoma. 1999;35(3-4):389-95. Epub 2000/03/08.

63. Advani R, Horwitz S, Zelenetz A, Horning SJ. Angioimmunoblastic T cell lymphoma: treatment experience with cyclosporine. Leukemia & lymphoma. 2007;48(3):521-5. Epub 2007/04/25.

64. Dogan A, Ngu LS, Ng SH, Cervi PL. Pathology and clinical features of angioimmunoblastic T-cell lymphoma after successful treatment with thalidomide. Leukemia. 2005;19(5):873-5. Epub 2005/03/04.

65. Strupp C, Aivado M, Germing U, Gattermann N, Haas R. Angioimmunoblastic lymphadenopathy (AILD) may respond to thalidomide treatment: two case reports. Leukemia & lymphoma. 2002;43(1):133-7. Epub 2002/03/23.

66. Zhao WL, Mourah S, Mounier N, Leboeuf C, Daneshpouy ME, Legres L, et al. Vascular endothelial growth factor-A is expressed both on lymphoma cells and endothelial cells in angioimmunoblastic T-cell lymphoma and related to lymphoma progression. Laboratory investigation; a journal of technical methods and pathology. 2004;84(11):1512-9. Epub 2004/08/18.

67. Bruns I, Fox F, Reinecke P, Kobbe G, Kronenwett R, Jung G, et al. Complete remission in a patient with relapsed angioimmunoblastic T-cell lymphoma following treatment with bevacizumab. Leukemia. 2005;19(11):1993-5. Epub 2005/09/10.

68. Halene S, Zieske A, Berliner N. Sustained remission from angioimmunoblastic T-cell lymphoma induced by alemtuzumab. Nature clinical practice Oncology. 2006;3(3):165-8; quiz 9. Epub 2006/03/08.

69. Talpur R, Apisarnthanarax N, Ward S, Duvic M. Treatment of refractory peripheral T-cell lymphoma with denileukin diftitox (ONTAK). Leukemia & lymphoma. 2002;43(1):121-6. Epub 2002/03/23.

70. Hagberg H, Pettersson M, Bjerner T, Enblad G. Treatment of a patient with a nodal peripheral T-cell lymphoma (angioimmunoblastic T-Cell lymphoma) with a human

monoclonal antibody against the CD4 antigen (HuMax-CD4). Med Oncol. 2005;22(2):191-4. Epub 2005/06/21.

71. Joly B PA, Grare M et al. Rituximab in combination with CHOP regimen in angioimmunoblastic T-cell lymphoma: Results of the phase II RAIL trial—A prospective study of the Groupe d'Etude des Lymphomes de l'Adulte (GELA) [Abstract]. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2010;28:Abstract #8049.

72. Kyriakou C, Canals C, Goldstone A, Caballero D, Metzner B, Kobbe G, et al. High-dose therapy and autologous stem-cell transplantation in angioimmunoblastic lymphoma: complete remission at transplantation is the major determinant of Outcome-Lymphoma Working Party of the European Group for Blood and Marrow Transplantation. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2008;26(2):218-24. Epub 2008/01/10.

73. Savage KJ, Harris NL, Vose JM, Ullrich F, Jaffe ES, Connors JM, et al. ALK-anaplastic large-cell lymphoma is clinically and immunophenotypically different from both ALK+ ALCL and peripheral T-cell lymphoma, not otherwise specified: report from the International Peripheral T-Cell Lymphoma Project. Blood. 2008;111(12):5496-504. Epub 2008/04/04.

74. Benharroch D, Meguerian-Bedoyan Z, Lamant L, Amin C, Brugieres L, Terrier-Lacombe MJ, et al. ALK-positive lymphoma: a single disease with a broad spectrum of morphology. Blood. 1998;91(6):2076-84. Epub 1998/04/16.

75. Brugieres L, Pacquement H, Le Deley MC, Leverger G, Lutz P, Paillard C, et al. Single-drug vinblastine as salvage treatment for refractory or relapsed anaplastic large-cell lymphoma: a report from the French Society of Pediatric Oncology. Journal of clinical

oncology : official journal of the American Society of Clinical Oncology. 2009;27(30):5056-61. Epub 2009/09/10.

76. Le Deley MC, Rosolen A, Williams DM, Horibe K, Wrobel G, Attarbaschi A, et al. Vinblastine in children and adolescents with high-risk anaplastic large-cell lymphoma: results of the randomized ALCL99-vinblastine trial. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2010;28(25):3987-93. Epub 2010/08/04.

77. Advani R SA, Brice P, et al. Brentuximab Vedotin (SGN-35) in patients with relapsed or refractory systemic anaplastic large cell lymphoma: A phase 2 study update [Abstract]. Blood. 2011;117:Abstract #443.

78. Gambacorti-Passerini C, Messa C, Pogliani EM. Crizotinib in anaplastic large-cell lymphoma. The New England journal of medicine. 2011;364(8):775-6. Epub 2011/02/25.

79. Grigg A. Daclizumab in anaplastic large cell lymphoma. Leukemia & lymphoma. 2006;47(1):175. Epub 2005/12/03.

80. Georgakis GV, Younes A. Heat-shock protein 90 inhibitors in cancer therapy: 17AAG and beyond. Future Oncol. 2005;1(2):273-81. Epub 2006/03/25.

81. Ait-Tahar K, Cerundolo V, Banham AH, Hatton C, Blanchard T, Kusec R, et al. B and CTL responses to the ALK protein in patients with ALK-positive ALCL. International journal of cancer Journal international du cancer. 2006;118(3):688-95. Epub 2005/08/23.

82. Piva R, Chiarle R, Manazza AD, Taulli R, Simmons W, Ambrogio C, et al. Ablation of oncogenic ALK is a viable therapeutic approach for anaplastic large-cell lymphomas. Blood. 2006;107(2):689-97. Epub 2005/09/29.

83. Au WY, Weisenburger DD, Intragumtornchai T, Nakamura S, Kim WS, Sng I, et al. Clinical differences between nasal and extranasal natural killer/T-cell lymphoma: a study of 136 cases from the International Peripheral T-Cell Lymphoma Project. Blood. 2009;113(17):3931-7. Epub 2008/11/26.

84. Kim HS, Kim KH, Chang MH, Ji SH, Lim do H, Kim K, et al. Whole blood Epstein-Barr virus DNA load as a diagnostic and prognostic surrogate: extranodal natural killer/T-cell lymphoma. Leukemia & lymphoma. 2009;50(5):757-63. Epub 2009/03/31.

85. Kanavaros P, Lescs MC, Briere J, Divine M, Galateau F, Joab I, et al. Nasal T-cell lymphoma: a clinicopathologic entity associated with peculiar phenotype and with Epstein-Barr virus. Blood. 1993;81(10):2688-95. Epub 1993/05/15.

86. Li T, Hongyo T, Syaifudin M, Nomura T, Dong Z, Shingu N, et al. Mutations of the p53 gene in nasal NK/T-cell lymphoma. Laboratory investigation; a journal of technical methods and pathology. 2000;80(4):493-9. Epub 2000/04/26.

87. Karube K, Nakagawa M, Tsuzuki S, Takeuchi I, Honma K, Nakashima Y, et al. Identification of FOXO3 and PRDM1 as tumor-suppressor gene candidates in NK-cell neoplasms by genomic and functional analyses. Blood. 2011;118(12):3195-204. Epub 2011/06/22.

88. Elenitoba-Johnson KS, Zarate-Osorno A, Meneses A, Krenacs L, Kingma DW, Raffeld M, et al. Cytotoxic granular protein expression, Epstein-Barr virus strain type, and latent membrane protein-1 oncogene deletions in nasal T-lymphocyte/natural killer cell lymphomas from Mexico. Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc. 1998;11(8):754-61. Epub 1998/08/28.

89. Chim CS, Ma SY, Au WY, Choy C, Lie AK, Liang R, et al. Primary nasal natural killer cell lymphoma: long-term treatment outcome and relationship with the International Prognostic Index. Blood. 2004;103(1):216-21. Epub 2003/08/23.

90. Chan JK, Sin VC, Wong KF, Ng CS, Tsang WY, Chan CH, et al. Nonnasal lymphoma expressing the natural killer cell marker CD56: a clinicopathologic study of 49 cases of an uncommon aggressive neoplasm. Blood. 1997;89(12):4501-13. Epub 1997/06/15.

91. Huang WT, Huang CC, Weng SW, Eng HL. Expression of the multidrug resistance protein MRP and the lung-resistance protein LRP in nasal NK/T cell lymphoma: further exploring the role of P53 and WT1 gene. Pathology. 2009;41(2):127-32. Epub 2008/10/31.

92. Kim GE, Yang WI, Lee SW, Rha SY, Chung HC, Kim JH, et al. Lack of correlation between P-glycoprotein and chemotherapy resistance in nasal NK/T-cell lymphomas. Leukemia & lymphoma. 2004;45(9):1857-64. Epub 2004/06/30.

93. Li YX, Yao B, Jin J, Wang WH, Liu YP, Song YW, et al. Radiotherapy as primary treatment for stage IE and IIE nasal natural killer/T-cell lymphoma. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2006;24(1):181-9. Epub 2005/12/31.

94. Huang MJ, Jiang Y, Liu WP, Li ZP, Li M, Zhou L, et al. Early or up-front radiotherapy improved survival of localized extranodal NK/T-cell lymphoma, nasal-type in the upper aerodigestive tract. International journal of radiation oncology, biology, physics. 2008;70(1):166-74. Epub 2007/10/09.

95. Kim SJ, Kim K, Kim BS, Kim CY, Suh C, Huh J, et al. Phase II trial of concurrent radiation and weekly cisplatin followed by VIPD chemotherapy in newly diagnosed, stage IE to IIE, nasal, extranodal NK/T-Cell Lymphoma: Consortium for Improving Survival of Lymphoma study. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2009;27(35):6027-32. Epub 2009/11/04.

96. Yamaguchi M, Tobinai K, Oguchi M, Ishizuka N, Kobayashi Y, Isobe Y, et al. Phase I/II study of concurrent chemoradiotherapy for localized nasal natural killer/T-cell lymphoma: Japan Clinical Oncology Group Study JCOG0211. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2009;27(33):5594-600. Epub 2009/10/07.

97. Aviles A, Cleto S, Castaneda C, Nambo MJ. CMED in the treatment of nasal natural killer cell lymphoma with distant metastases. Hematology. 2007;12(3):241-4. Epub 2007/06/15.

98. Yamaguchi M, Suzuki R, Kwong YL, Kim WS, Hasegawa Y, Izutsu K, et al. Phase I study of dexamethasone, methotrexate, ifosfamide, L-asparaginase, and etoposide (SMILE) chemotherapy for advanced-stage, relapsed or refractory extranodal natural killer (NK)/T-cell lymphoma and leukemia. Cancer science. 2008;99(5):1016-20. Epub 2008/02/26.

99. Yamaguchi M, Kwong YL, Kim WS, Maeda Y, Hashimoto C, Suh C, et al. Phase II study of SMILE chemotherapy for newly diagnosed stage IV, relapsed, or refractory extranodal natural killer (NK)/T-cell lymphoma, nasal type: the NK-Cell Tumor Study Group study. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2011;29(33):4410-6. Epub 2011/10/13.

100. Kwong YL, Kim WS, Lim ST, Kim SJ, Tang T, Tse E, et al. SMILE for natural killer/T-cell lymphoma: analysis of safety and efficacy from the Asia Lymphoma Study Group. Blood. 2012;120(15):2973-80. Epub 2012/08/25.

101. Ochenrider MG, Patterson DJ, Aboulafia DM. Hepatosplenic T-cell lymphoma in a young man with Crohn's disease: case report and literature review. Clinical lymphoma, myeloma & leukemia. 2010;10(2):144-8. Epub 2010/04/08.

102. Abramson JS, Kotton CN, Elias N, Sahani DV, Hasserjian RP. Case records of the Massachusetts General Hospital. Case 8-2008. A 33-year-old man with fever, abdominal pain, and pancytopenia after renal transplantation. The New England journal of medicine. 2008;358(11):1176-87. Epub 2008/03/14.

103. Tey SK, Marlton PV, Hawley CM, Norris D, Gill DS. Post-transplant hepatosplenic T-cell lymphoma successfully treated with HyperCVAD regimen. American journal of hematology. 2008;83(4):330-3. Epub 2007/09/19.

104. Belhadj K, Reyes F, Farcet JP, Tilly H, Bastard C, Angonin R, et al. Hepatosplenic gammadelta T-cell lymphoma is a rare clinicopathologic entity with poor outcome: report on a series of 21 patients. Blood. 2003;102(13):4261-9. Epub 2003/08/09.

105. Jaeger G, Bauer F, Brezinschek R, Beham-Schmid C, Mannhalter C, Neumeister P. Hepatosplenic gammadelta T-cell lymphoma successfully treated with a combination of alemtuzumab and cladribine. Annals of oncology : official journal of the European Society for Medical Oncology / ESMO. 2008;19(5):1025-6. Epub 2008/04/01.

106. Grigg AP. 2'-Deoxycoformycin for hepatosplenic gammadelta T-cell lymphoma. Leukemia & lymphoma. 2001;42(4):797-9. Epub 2001/11/08.

107. Machino T, Okoshi Y, Kaneko S, Obara N, Mukai HY, Suzukawa K, et al. Hepatosplenic alphabeta T-cell lymphoma successfully treated with allogeneic bone marrow transplantation. Bone marrow transplantation. 2007;39(8):513-4. Epub 2007/02/21.

108. Proietti FA, Carneiro-Proietti AB, Catalan-Soares BC, Murphy EL. Global epidemiology of HTLV-I infection and associated diseases. Oncogene. 2005;24(39):6058-68. Epub 2005/09/13.

109. Shimoyama M. Diagnostic criteria and classification of clinical subtypes of adult T-cell leukaemia-lymphoma. A report from the Lymphoma Study Group (1984-87). British journal of haematology. 1991;79(3):428-37. Epub 1991/11/01.

110. Suzumiya J, Ohshima K, Tamura K, Karube K, Uike N, Tobinai K, et al. The International Prognostic Index predicts outcome in aggressive adult T-cell leukemia/lymphoma: analysis of 126 patients from the International Peripheral T-Cell Lymphoma Project. Annals of oncology : official journal of the European Society for Medical Oncology / ESMO. 2009;20(4):715-21. Epub 2009/01/20.

111. Tannir N, Riggs S, Velasquez W, Samaan N, Manning J. Hypercalcemia, unusual bone lesions, and human T-cell leukemia-lymphoma virus in adult T-cell lymphoma. Cancer. 1985;55(3):615-9. Epub 1985/02/01.

112. White JD, Zaknoen SL, Kasten-Sportes C, Top LE, Navarro-Roman L, Nelson DL, et al. Infectious complications and immunodeficiency in patients with human T-cell lymphotropic virus I-associated adult T-cell leukemia/lymphoma. Cancer. 1995;75(7):1598-607. Epub 1995/04/01.

113. Jaffe ES, Blattner WA, Blayney DW, Bunn PA, Jr., Cossman J, Robert-Guroff M, et al. The pathologic spectrum of adult T-cell leukemia/lymphoma in the United States. Human T-cell leukemia/lymphoma virus-associated lymphoid malignancies. The American journal of surgical pathology. 1984;8(4):263-75. Epub 1984/04/01.

114. Yamada Y, Tomonaga M, Fukuda H, Hanada S, Utsunomiya A, Tara M, et al. A new G-CSF-supported combination chemotherapy, LSG15, for adult T-cell leukaemia-lymphoma: Japan Clinical Oncology Group Study 9303. British journal of haematology. 2001;113(2):375-82. Epub 2001/06/14.

115. Tsukasaki K, Utsunomiya A, Fukuda H, Shibata T, Fukushima T, Takatsuka Y, et al. VCAP-AMP-VECP compared with biweekly CHOP for adult T-cell leukemia-lymphoma: Japan Clinical Oncology Group Study JCOG9801. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2007;25(34):5458-64. Epub 2007/10/31.

116. Hermine O, Bouscary D, Gessain A, Turlure P, Leblond V, Franck N, et al. Brief report: treatment of adult T-cell leukemia-lymphoma with zidovudine and interferon alfa. The New England journal of medicine. 1995;332(26):1749-51. Epub 1995/06/29.

117. Hermine O, Allard I, Levy V, Arnulf B, Gessain A, Bazarbachi A. A prospective phase II clinical trial with the use of zidovudine and interferon-alpha in the acute and

lymphoma forms of adult T-cell leukemia/lymphoma. The hematology journal : the official journal of the European Haematology Association / EHA. 2002;3(6):276-82. Epub 2003/01/11.

118. Tsukasaki K, Hermine O, Bazarbachi A, Ratner L, Ramos JC, Harrington W, Jr., et al. Definition, prognostic factors, treatment, and response criteria of adult T-cell leukemia-lymphoma: a proposal from an international consensus meeting. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2009;27(3):453-9. Epub 2008/12/10.

119. Cheson BD, Pfistner B, Juweid ME, Gascoyne RD, Specht L, Horning SJ, et al. Revised response criteria for malignant lymphoma. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2007;25(5):579-86. Epub 2007/01/24.

120. Oken MM, Creech RH, Tormey DC, Horton J, Davis TE, McFadden ET, et al. Toxicity and response criteria of the Eastern Cooperative Oncology Group. American journal of clinical oncology. 1982;5(6):649-55. Epub 1982/12/01.

APPENDIX

Appendix 1- Ann Arbor staging with Cotswolds modifications (15)

Stage I	Single lymph node region involved.
Stage II	Two or more lymph node regions involved on the same side of the diaphragm.
Stage III	Lymph node regions involved on both sides of the diaphragm. This may be subdivided stage III-1 or III-2. stage III-1 = involvement of the spleen or splenic hilar, celiac, or portal nodes; and stage III-2 = involvement of the paraaortic, iliac, inguinal, or mesenteric nodes.
Stage IV	Disseminated involvement of one or more extranodal organs or tissue beyond that designated E, with or without associated lymph node involvement.
	All cases are further subclassified to indicate the absence (A) or presence (B) of the systemic symptoms (significant unexplained fever, night sweats, or unexplained weight loss exceeding 10 percent of body weight during the six months before diagnosis). "E"= extranodal contiguous extension. "X" = bulky disease. This is defined as >10 cm maximum dimension of a nodal mass or a mediastinal mass with a maximum width ≥ 1/3 of the internal transverse diameter of the thorax at the level of T5/6 interspace.

Appendix 2- Lugano classification for staging in lymphoma (17)

Stage	Involvement	Extranodal (E) Status
Limited		
I	One node or a group of adjacent nodes	Single extranodal lesions without nodal involvement
II	Two or more nodal groups on the same side of the diaphragm	Stage I or II by nodal extent with limited contiguous extranodal involvement
II bulky	II as above with ―bulky‖ disease	Not applicable
Advanced		
III	Nodes on both sides of the diaphragm; nodes above the diaphragm with spleen involvement	Not applicable
IV	Additional noncontiguous extra lymphatic involvement	Not applicable

NOTE. Extent of disease is determined by positron emission tomography – computed tomography for avid lymphomas and computed tomography for nonavid histologies. Tonsils, Waldeyer's ring, and spleen are considered nodal tissue.

Whether stage II bulky disease is treated as limited or advanced disease may be determined by histology and a number of prognostic factors.

Appendix-3 Revised International Working Group response criteria (119)

Response	Definition	Nodal Masses	Spleen, Liver	Bone Marrow
CR (Complete remission)	Disappearance of all evidence of disease	(a) FDG-avid or PET positive prior to therapy; mass of any size permitted if PET negative (b) Variably FDG-avid or PET negative; regression to normal size on CT	Not palpable, nodules disappeared	Infiltrate cleared on repeat biopsy; if indeterminate by morphology, immunohistochemistry should be negative
PR (Partial remission)	Regression of measuable disease and no new sites	≥ 50% decrease in SPD of up to 6 largest dominant masses; no increase in size of other nodes (a)	≥ 50% decrease in SPD of nodules (for single nodule in greatest transverse diameter);	Irrelevant if positive prior to therapy; cell type should be specified

		FDG-avid or PET positive prior to therapy; one or more PET positive at previously involved site (b) Variably FDG-avid or PET negative; regression on CT	no increase in size of liver or spleen	
SD (Stable disease)	Failure to attain CR/PR or PD	(a) FDG-avid or PET positive prior to therapy; PET positive at prior sites of disease and no new sites on CT or PET		
		(b) Variably FDG-		

		avid or PET negative; no change in size of previous lesions on CT		
Relapsed disease or PD	Any new lesion or increase by ≥ 50% of previously involved sites from nadir	Appearance of a new lesion(s) > 1.5 cm in any axis, ≥ 50% increase in SPD of more than one node, or ≥ 50% increase in longest diameter of a previously identifed node > 1 cm in short axis	> 50% increase from nadir in the SPD of any previous lesions	New or recurrent involvement
		Lesions PET positive if FDG-avid		

		lymphoma or PET positive prior to therapy		

Abbreviations: FDG, [^{18}F]fluorodeoxyglucose; PET, positron emission tomography; CT, computed tomography; SPD, sum of the product of the diameters; PD, progressive disease.

Appendix-4 ECOG performance status (120)

Grade	ECOG
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours
3	Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours
4	Completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair
5	Dead

Appendix 5- Case Record Form

Name/Hospital No. -

Age/Sex- Date of diagnosis-

Address/state-

Phone-

Type of PTCL –

Symptoms at presentation-

Duration of symptoms-

Nodal Sites involved-

Extranodal Sites involved-

Stage- B Symptoms-

LDH- ECOG PS-

Bulky disease- if yes size

IPI-

Age>60- LDH-

PS >1- 3/4 stage-

EN>1

PIT-

Age>60- LDH- PS- BM-

IPTCLP-

Age>60 Plt <150k PS>1

NKPI-

B symp- LDH- stage3/4- Reg.LN-

PIAI-

Bsym- Age>60- PS>1 EN>1 Plt<150k

HIV- HBsAg- HCV- EBV-

Hb- TLC- Plt-

DC-

LFT- RFT-

Radiology- Above or below diaphram

Treatment received and date of starting-

Total no. of cycles-

Interim analysis-

S/E-

Hospitalisation-

GCSF-

Post treatment remission status-

Date of completion of chemotherapy-

Date of relapse-

Salvage therapy and date of starting-

No. of cycles-

Post salvage remission status-

Transplant with date and status post transplant-

Autologous-

Allogenic-

Outcome- Alive/dead Date of Death-

Cause of death-

Date of last follow up-

IHC markers-

Sr no	Age	Sex	State	region	occupa	DODiagnosis	Diagnosis	Symptoms at presentatio	B sympo	Fever	Weight loss	Night sweat
		1- M	1-WB	1- East	1- Labourer		1-PTCL-NOS	1- LN swelling	1- A (No)	1- Yes	1- Yes	1- Yes
		2- F	2- Arunach	2- South	2- Service		2-AITL	2- throat symptoms	2- B (Yes)	2- No	2- No	2- No
	22- Meghalaya		3- TN	3- North	3- Farmer		3-ALCL ALK+	3- Nasal sympt		99-NIR	99-NIR	99- NIR
	16-Nagalan	10-Tripura	4-Kerala	4- West	4- HW		4-ALCL ALK-	4- Abd				
	17-Bhutan	11- Nepal	5-AP	5-Central	5- Business		5-HS TCL	5- Visual				
	18-MP	12-Bihar	6- Jharkahnd		6- NIR		6-ATLL	6- skin lesion				
	19-Punjab	13-Karnata	7-Orissa		7- student		7-NK/T cell	7- Lump 12- Anemic				
	20-Jammu	14-Assam	8-Chattisgarh		8-Teacher			8- PUO 11- Backache				
	21-Pondich	15-Mahara	9-Bangladesh		9- Dr			9- Pul 10- Neurological				
1	36	1	1	1	1	12/02/11	7	3	1	2	2	2
2	39	1	1	1	2	01/10/12	1	2	2	1	2	2
3	38	1	2	1	3	03/05/12	7	3	1	2	2	2
4	47	2	3	2	3	05/02/12	7	4	2	1	2	2
5	46	2	4	2	4	11/02/12	4	3	1	2	2	2
6	63	2	3	2	4	09/11/12	7	3	1	2	2	2
7	24	1	3	2	1	06/25/12	7	3	2	1	1	2
8	27	1	5	2	1	06/07/12	7	3	2	2	1	2
9	54	1	1	1	5	03/26/12	7	5	1	2	2	2
10	41	1	5	2	6	05/01/10	7	4	2	1	2	2
11	39	1	1	1	3	01/23/09	7	3	2	1	1	1
12	61	1	1	1	1	02/06/12	6	2	2	1	2	2
13	50	1	1	1	3	11/19/12	1	3	2	1	1	2
14	23	2	3	2	7	02/24/12	1	2	1	2	2	2
15	21	1	1	1	3	11/01/12	1	1	1	2	2	2
16	42	1	7	1	5	09/03/09	1	1	2	1	2	2
17	29	2	3	2	4	12/13/12	1	1	2	1	2	2
18	46	1	3	2	5	12/01/12	1	2	1	2	2	2
19	58	2	1	1	1	02/20/12	1	1	1	2	2	2
20	48	1	1	1	5	02/25/11	5	8	2	1	2	2
21	73	1	6	1	6	10/22/12	1	1	2	1	2	2
22	56	1	8	5	2	09/06/11	1	1	1	2	2	2
23	46	1	10	1	3	03/30/12	2	1	2	1	2	2
24	45	1	1	1	1	07/03/12	2	1	2	1	1	2
25	56	1	3	2	1	02/09/12	1	1	2	2	1	2
26	53	1	1	1	1	09/26/12	2	1	2	1	2	2
27	52	1	3	2	3	06/29/12	2	1	2	1	2	2
28	48	1	1	1	3	12/17/12	1	6	2	1	2	2
29	20	1	6	1	7	10/25/10	7	4	2	1	1	2
30	24	1	1	1	3	09/15/10	7	3	2	1	1	2
31	40	1	9	1	3	11/19/09	7	3	2	1	1	2
32	73	1	6	1	3	03/20/09	7	2	1	2	2	2
33	50	1	3	2	5	12/14/07	7	3	1	2	2	2
34	37	1	7	1	2	12/17/08	7	3	2	2	1	2
35	45	1	11	1	2	04/13/11	7	7	2	1	2	2
36	36	1	4	2	2	07/21/11	1	3	1	2	2	2
37	36	1	1	1	5	08/16/10	7	4	2	2	1	2
38	43	1	3	2	6	04/01/09	7	4	2	2	2	2
39	51	2	6	1	5	07/12/07	7	3	2	1	2	1
40	26	1	1	1	3	07/13/09	7	1	2	1	2	2
41	68	1	3	2	3	05/24/10	7	3	1	2	2	2
42	59	1	3	2	8	06/10/11	7	3	2	1	2	2
43	41	1	3	2	2	05/22/10	7	4	2	1	2	2
44	32	1	3	2	1	10/07/10	1	4	2	1	1	2
45	66	1	1	1	3	05/31/11	7	3	1	2	2	2
46	29	1	3	2	1	07/05/11	1	3	1	2	2	2
47	57	1	3	2	5	12/14/07	7	3	2	1	2	2
48	46	1	2	1	5	04/28/09	7	3	2	1	1	2
49	37	1	1	1	3	10/07/09	7	2	2	2	2	2
50	37	1	1	1	3	09/05/11	1	1	2	2	1	2
51	29	2	3	2	6	09/16/11	5	4	2	1	1	2
52	58	2	6	1	4	10/25/11	3	1	2	1	2	2
53	56	1	1	1	2	09/28/11	4	1	2	1	2	2
54	43	1	5	2	5	09/01/11	1	1	2	1	1	2
55	44	1	9	1	5	12/14/12	1	1	1	2	2	2
56	55	1	1	1	2	08/30/11	1	1	99	99	99	99
57	14	1	5	2	6	12/21/11	1	4	2	1	2	2
58	44	1	5	2	2	09/14/07	4	8	2	1	1	2
59	54	1	3	2	1	08/17/10	7	3	2	1	1	2
60	43	1	7	1	5	12/09/11	3	4	2	2	1	2
61	53	1	3	2	1	01/14/11	1	2	2	1	1	2
62	20	2	1	1	7	12/13/11	5	9	2	1	1	2
63	21	1	12	1	6	08/16/10	5	99	99	99	99	99
64	74	1	13	2	2	10/01/07	1	4	2	1	1	2
65	23	1	2	1	7	02/01/12	4	4	2	1	2	2
66	75	2	1	1	6	05/29/12	4	1	1	2	2	2
67	31	1	9	1	3	06/14/12	4	4	2	2	1	2
68	21	1	7	1	7	05/24/12	3	1	2	1	2	2
69	60	1	13	2	6	04/27/12	4	8	2	1	2	2
70	45	1	12	1	3	06/04/12	1	8	2	1	2	2
71	56	1	1	1	3	04/18/12	1	1	1	1	2	2
72	72	1	1	1	8	03/15/13	1	8	2	1	2	1
73	59	1	1	1	3	10/15/07	6	8	2	1	1	2
74	30	1	1	1	2	07/05/12	3	1	1	2	2	2
75	23	1	14	1	7	01/31/11	5	8	2	1	1	2
76	27	2	4	2	4	07/24/12	4	10	2	1	2	2
77	29	1	6	1	7	10/04/12	5	4	2	1	1	2
78	18	1	3	2	7	07/17/12	3	7	1	2	2	2
79	31	1	6	1	6	08/09/12	4	11	2	2	1	2
80	57	1	1	1	1	09/17/12	6	1	2	2	1	2
81	36	1	12	1	2	03/08/11	4	1	2	1	2	2
82	39	1	4	2	5	04/06/10	3	1	1	2	2	2
83	27	1	5	2	7	04/15/11	3	4	2	1	2	2
84	72	1	8	5	2	01/23/10	6	8	2	1	1	2
85	26	1	15	4	7	12/30/10	3	11	1	2	2	2
86	49	1	6	1	2	10/07/10	1	8	2	1	1	2
87	41	1	7	1	2	05/18/11	3	4	2	1	2	2
88	40	2	9	1	4	04/14/11	3	1	2	1	2	2
89	66	1	3	2	2	05/20/09	1	1	2	2	1	2
90	75	1	3	2	3	12/24/12	4	4	2	2	1	2
91	65	1	6	1	2	12/20/12	6	8	2	1	2	2

92	56	1	8	5	2	11/05/12	4	1	1	2	2	2
93	45	2	4	2	4	10/19/12	4	4	2	2	2	1
94	49	1	1	1	3	10/20/12	4	11	2	1	1	2
95	37	1	6	1	2	10/31/12	4	8	2	1	1	2
96	33	2	6	1	4	06/23/09	1	8	2	1	1	2
97	23	1	5	2	7	05/08/09	3	3	1	2	2	2
98	28	1	1	1	7	08/03/09	1	4	2	2	1	2
99	58	1	3	2	2	09/10/08	4	1	1	2	2	2
100	41	1	14	1	8	09/25/09	4	1	2	1	2	2
101	38	1	6	1	5	11/10/09	1	1	2	1	2	2
102	38	1	3	2	2	11/29/12	4	8	2	1	2	2
103	54	1	6	1	5	09/29/09	1	4	2	2	1	2
104	62	1	8	5	2	07/07/10	4	4	2	1	2	2
105	38	1	1	1	5	08/18/09	5	8	2	1	2	2
106	78	1	13	2	6	06/17/11	4	7	2	1	2	2
107	65	1	4	2	6	11/30/09	1	8	2	1	2	2
108	51	1	14	1	5	12/11/09	4	8	2	1	2	2
109	55	1	5	2	2	12/18/09	4	1	99	2	2	2
110	65	1	4	2	3	12/17/09	6	8	2	1	1	2
111	44	1	3	2	2	02/04/10	5	8	2	1	1	2
112	48	1	1	1	5	08/20/09	1	8	2	1	2	2
113	35	1	1	1	3	10/28/09	1	8	2	1	2	2
114	55	1	6	1	2	01/22/10	5	8	2	1	1	2
115	55	1	1	1	2	11/15/10	1	1	2	1	1	2
116	65	1	12	1	5	08/16/11	2	1	2	2	2	2
117	59	2	3	2	4	05/06/10	4	1	2	2	1	2
118	28	1	1	1	5	05/31/10	3	1	2	1	2	2
119	33	1	3	2	2	06/07/10	1	1	2	1	2	2
120	18	2	18	5	3	07/15/08	5	8	2	1	1	2
121	23	2	5	2	7	03/10/08	1	1	2	1	1	2
122	36	1	1	1	8	09/05/08	5	8	2	1	1	2
123	55	1	1	1	3	10/01/08	4	1	2	2	1	2
124	57	2	1	1	4	05/26/08	1	1	2	1	1	2
125	48	1	1	1	3	06/03/08	1	1	2	1	2	1
126	39	1	14	1	3	06/27/08	3	1	2	2	1	1
127	61	1	1	1	3	07/19/08	2	1	2	1	1	2
128	55	2	4	2	4	10/18/08	1	3	1	2	2	2
129	66	1	8	5	2	06/22/09	4	1	2	1	2	2
130	25	1	22	1	7	10/27/08	1	8	2	1	2	2
131	50	1	3	2	1	11/19/08	1	1	2	1	2	2
132	62	1	1	1	2	11/17/08	4	1	2	1	2	2
133	50	2	9	1	6	10/21/08	4	1	2	1	2	2
134	47	1	1	1	2	02/09/09	1	1	2	2	1	2
135	58	1	11	1	3	02/14/09	1	8	2	1	2	2
136	45	1	9	1	2	02/24/09	1	7	2	1	2	2
137	39	1	3	2	1	03/24/09	1	8	2	1	1	2
138	53	1	13	2	1	04/08/09	2	1	2	1	2	2
139	59	1	1	1	8	04/25/09	6	8	2	1	1	2
140	37	1	14	1	3	05/26/09	1	8	2	1	1	2
141	70	1	6	1	3	06/19/09	4	8	2	1	1	2
142	30	1	1	1	1	07/06/09	5	4	2	2	1	2
143	45	1	5	2	3	07/11/09	1	8	2	1	1	1
144	37	2	1	1	4	06/18/10	5	8	2	1	1	2
145	37	1	1	1	4	07/09/10	1	1	2	1	2	2
146	28	1	1	1	7	09/06/10	1	8	2	1	2	2
147	70	1	3	2	1	09/24/10	4	1	1	2	2	2
148	50	1	1	1	3	11/15/10	4	1	2	2	2	2
149	54	1	1	1	9	04/14/11	6	8	2	1	2	2
150	42	1	1	1	2	04/12/11	1	11	2	2	1	2
151	57	1	7	1	5	04/13/11	1	8	2	1	2	2
152	18	1	1	1	7	05/06/11	3	1	1	2	2	2
153	18	1	12	1	7	06/28/11	5	8	2	1	2	2
154	45	2	3	2	3	08/01/11	4	2	1	2	2	2
155	80	1	16	1	6	04/16/07	1	2	1	2	2	2
156	23	2	3	2	4	03/17/08	1	3	1	2	2	2
157	55	1	3	2	2	08/31/10	1	1	1	2	2	2
158	44	1	1	1	2	06/04/07	1	1	1	2	2	2
159	63	1	3	2	1	06/18/07	1	8	2	1	2	2
160	55	1	4	2	2	05/18/07	4	1	2	1	2	2
161	20	1	9	1	7	05/23/07	3	7	2	1	1	2
162	69	1	1	1	2	05/28/07	5	8	2	1	1	2
163	31	1	1	1	3	04/17/07	1	4	2	1	1	2
164	37	1	1	1	3	05/24/07	1	1	2	1	2	2
165	18	1	1	1	7	05/03/07	4	8	2	1	2	2
166	18	1	1	1	7	06/30/07	5	1	2	1	2	2
167	39	1	3	2	2	06/18/07	3	1	2	1	2	2
168	31	1	1	1	1	07/03/07	4	1	1	2	2	2
169	46	1	1	1	5	07/27/07	1	8	2	1	1	2
170	32	1	3	2	4	07/23/07	4	1	2	1	1	2
171	37	1	3	2	5	10/12/07	3	8	2	1	2	2
172	43	1	1	1	5	09/24/07	4	1	2	1	1	2
173	56	1	1	1	3	11/23/07	4	1	2	2	2	2
174	56	2	14	1	4	12/21/07	4	1	1	2	2	2
175	20	1	6	1	5	05/15/08	1	1	1	2	2	2
176	54	1	1	1	6	01/27/10	2	1	2	1	2	2
177	19	2	2	1	7	03/04/09	7	2	2	1	1	2
178	40	1	21	2	1	06/13/08	2	1	2	1	2	2
179	50	2	5	2	4	03/27/07	7	3	1	2	2	2
180	40	2	3	2	4	09/20/12	1	8	2	1	2	2
181	53	2	6	1	4	04/03/12	2	4	1	2	2	2
182	74	1	3	2	6	06/25/12	2	8	2	1	1	2
183	62	2	1	1	3	02/25/08	4	1	2	2	1	2
184	46	1	1	1	3	12/03/08	1	1	1	2	2	2
185	56	1	9	1	5	08/06/11	6	1	2	2	1	2
186	60	2	6	1	4	09/03/08	5	8	2	1	2	2
187	65	1	3	2	6	11/21/07	1	3	2	1	2	2
188	30	1	12	1	6	01/19/07	1	8	2	1	2	2
189	54	1	3	2	6	03/24/09	1	8	2	1	1	2
190	55	2	3	2	4	06/05/09	1	4	2	2	1	2
191	67	1	1	1	2	08/03/11	1	1	99	99	99	99
192	40	2	14	1	4	03/08/07	1	1	2	1	2	2

193	51	2	3	2	6	03/09/07	4	1	2	1	2	2
194	70	1	5	2	1	03/06/07	1	12	2	1	2	2
195	18	1	9	1	7	01/15/07	3	1	1	2	2	2
196	51	1	4	2	2	11/23/07	6	8	2	1	1	2
197	42	1	3	2	1	01/25/11	1	3	2	1	2	2
198	26	2	5	2	6	07/22/10	4	2	2	1	2	2
199	45	1	1	1	6	11/11/09	1	2	1	2	2	2
200	53	2	3	2	6	03/03/10	4	1	2	1	1	2
201	63	1	3	2	6	04/30/10	1	8	2	1	2	2
202	25	1	1	1	6	06/27/08	3	1	2	1	2	2
203	68	1	3	2	6	08/21/08	3	8	2	1	1	2
204	51	1	1	1	6	10/17/08	1	8	2	1	1	2
205	49	1	14	1	2	12/01/09	4	8	2	1	1	2
206	45	2	4	2	6	10/29/08	1	8	2	1	2	2
207	32	1	3	2	6	01/13/09	3	8	2	1	2	2
208	20	1	12	1	7	01/19/09	1	8	2	1	2	2
209	53	1	6	1	6	02/10/09	5	8	2	1	1	2
210	58	2	5	2	6	08/03/10	5	4	2	1	2	2
211	70	1	1	1	6	08/10/09	4	8	2	1	2	2
212	18	1	6	1	6	07/13/09	2	1	2	1	2	2
213	48	1	17	1	6	05/26/09	4	8	2	1	2	2
214	56	1	5	2	6	04/29/09	4	8	2	1	2	2
215	24	1	1	1	6	04/27/09	1	8	2	1	1	2
216	46	1	1	1	6	04/13/09	1	99	99	99	99	99
217	54	1	1	1	6	03/18/09	1	4	2	1	2	2
218	31	1	3	2	6	11/03/10	4	8	2	1	2	2
219	25	1	1	1	6	04/11/11	5	99	99	99	99	99
220	23	1	3	2	6	06/22/07	4	99	99	99	99	99
221	65	1	1	1	6	09/03/07	1	99	99	99	99	99
222	52	1	3	2	6	09/21/07	2	8	2	1	2	2
223	51	1	3	2	6	03/07/11	2	4	2	1	2	2
224	65	1	1	1	6	05/09/11	2	8	2	1	2	1
225	18	1	1	1	6	06/01/11	1	8	2	1	2	2
226	39	1	1	1	6	05/10/10	1	8	2	1	2	2
227	59	1	1	1	6	03/03/10	1	4	99	99	99	99
228	27	1	1	1	6	01/06/09	7	99	99	99	99	99
229	40	1	15	4	6	03/09/10	2	99	99	99	99	99
230	33	1	5	2	6	05/30/12	7	8	2	1	2	2
231	20	1	2	1	6	02/16/09	7	2	2	1	1	2
232	46	1	20	3	9	03/15/12	4	1	1	2	2	2
233	47	1	18	5	6	11/15/11	4	1	1	2	2	2
234	53	1	19	3	5	08/01/12	2	1	2	1	2	2
235	44	2	3	2	4	04/27/13	1	6	2	1	2	2
236	56	1	9	1	2	01/04/08	2	1	1	2	2	2
237	30	2	14	1	4	09/07/07	4	1	2	1	1	2
238	45	1	5	2	1	04/09/08	1	4	2	1	1	2
239	54	1	9	1	6	08/07/08	4	1	2	1	2	2
240	38	1	9	1	5	09/10/07	2	8	2	1	1	2
241	60	1	3	2	1	07/18/11	2	1	2	1	1	2
242	42	2	3	2	6	03/05/10	1	8	2	1	1	2
243	30	1	3	2	6	05/29/08	1	6	2	1	2	2

Sr no	symptomatic dx	Family h/o	Addictions	ECOG PS	LDH	Cervical	Supracla	Axillary	Mediastinum	Abd
	months	1- Yes	1- Tobacco		1- not do	1- Inv	1- Inv	1- Inv	1- Inv	1- Inv
		2- No	2- Alcohol			2- Not	2- Not	2- Not	2- Not	2- Not
		3- NIR	3- Smoking			3- NIR	3- NIR	3- NIR	3- NIR	3- NIR
		4- Other malig	4- Nil							
			5- NIR							
			6- 2+3							
			7- 1 and 2							
1	6	2	1	2	1	2	2	2	2	2
2	3	2	4	2	391	1	2	1	2	1
3	3	2	4	2	1	1	2	2	2	2
4	6	2	4	2	1	2	2	2	2	1
5	2	2	4	2	767	2	2	2	1	2
6	3	2	4	2	411	2	2	2	2	2
7	4	2	5	2	477	1	2	2	2	2
8	3	2	5	2	901	2	2	2	2	2
9	2	2	4	2	547	2	2	2	2	2
10	2	3	5	2	508	2	2	2	2	1
11	12	2	4	2	259	2	2	2	2	2
12	3	2	4	1	616	1	2	1	2	2
13	3	3	5	2	1	1	2	2	1	1
14	3	2	4	2	437	2	2	2	2	2
15	8	2	4	2	568	1	2	1	1	1
16	2	2	5	2	469	2	2	2	2	2
17	4	2	4	2	1447	1	2	2	2	2
18	6	2	5	2	443	1	2	2	2	2
19	15	2	4	1	1061	1	2	1	2	1
20	6	2	4	2	1333	2	2	1	2	2
21	1	2	5	3	455	1	2	1	2	1
22	12	2	1	2	345	1	2	1	1	1
23	3	2	4	2	1890	1	2	1	2	1
24	9	2	5	3	755	1	2	1	1	1
25	3	2	4	2	567	1	2	1	1	1
26	1	2	4	2	1421	1	2	1	2	1
27	1	2	4	3	678	1	2	1	1	1
28	24	2	5	3	1161	1	2	1	2	1
29	2	2	4	2	1515	1	2	1	2	2
30	3	2	5	2	376	2	2	2	2	2
31	12	2	4	1	1	2	2	2	2	2
32	3	2	2	1	500	1	2	2	2	2
33	8	2	4	1	1780	1	2	2	2	2
34	6	2	4	2	977	1	2	2	2	2
35	6	2	4	1	1521	2	2	2	2	2
36	12	2	4	1	587	2	2	2	2	2
37	2	2	6	2	530	2	2	2	2	2
38	1	3	5	2	667	2	2	2	2	1
39	3	3	4	2	425	1	2	2	2	2
40	6	2	4	2	937	1	2	2	2	2
41	2	3	5	1	501	2	2	2	2	2
42	1	2	4	1	1	1	2	2	2	2
43	6	2	4	2	226	2	2	2	2	2
44	0.5	3	5	2	741	2	2	2	2	2
45	24	2	1	1	1	2	2	2	2	2
46	1	3	5	2	816	2	2	22	2	2
47	8	2	4	1	1780	1	2	2	2	2
48	12	2	3	2	802	1	2	2	2	2
49	6	2	1	1	1	2	2	2	2	2
50	30	3	5	2	868	1	2	1	2	2
51	6	2	4	2	659	2	2	2	2	2
52	6	2	4	1	484	1	1	2	2	2
53	5	2	3	2	982	1	2	1	1	1
54	6	3	1	2	685	1	2	1	2	1
55	18	3	5	1	452	2	2	1	2	2
56	99	3	5	99	1	3	3	3	3	3
57	12	3	5	2	1518	2	2	2	2	2
58	3	2	4	2	444	2	2	2	2	2
59	2	1	4	1	992	2	2	2	2	2
60	3	3	5	2	425	2	2	2	2	1
61	0.5	2	3	2	1313	1	2	1	2	1
62	3	3	5	2	1135	2	2	2	2	2
63	99	3	5	2	1453	2	2	2	2	2
64	2	3	5	2	784	1	2	1	2	2
65	1	3	4	2	3841	1	2	2	2	2
66	2	3	5	1	815	1	2	1	2	2
67	1	3	5	2	1	2	2	2	2	1
68	3	2	4	1	363	2	2	2	2	1
69	2	3	5	3	735	2	2	2	2	1
70	2	3	7	2	745	1	2	1	2	1
71	2	2	3	2	1	1	1	1	2	1
72	6	3	5	2	1001	2	2	2	2	1
73	1	3	5	2	708	1	2	1	2	1
74	3	3	5	1	435	2	2	2	1	1
75	3	2	4	2	1213	2	2	2	2	2
76	2	2	4	2	1015	2	2	2	2	2
77	2	2	4	2	1010	2	2	2	2	2
78	12	2	4	1	468	2	2	2	2	2
79	2	3	5	2	1389	2	2	2	2	1
80	2	2	1	1	1	1	2	1	1	1
81	3	2	4	2	1	2	2	2	2	1
82	1	2	4	1	625	2	2	1	2	2
83	1	3	5	2	494	2	2	2	2	2
84	6	3	5	2	901	1	1	1	1	1
85	24	2	4	3	463	2	2	2	2	2
86	12	3	5	2	520	1	2	1	2	1
87	6	2	4	2	394	2	1	2	2	1
88	3	3	5	2	934	1	1	1	2	1
89	1	3	5	2	428	1	1	2	1	1
90	2	3	5	2	1	2	2	2	2	1
91	2	3	5	3	403	1	2	2	2	1

92	0.5	2	4	1	481	2	2	1	2	2
93	3	2	4	2	705	2	2	2	1	1
94	8	2	4	3	967	2	2	2	2	2
95	1.5	2	5	3	2003	2	2	2	2	1
96	5	3	5	2	962	2	2	1	2	2
97	3	3	5	1	512	2	2	2	2	2
98	18	2	4	2	484	2	2	2	2	1
99	6	2	4	1	385	2	2	2	2	1
100	12	2	4	2	706	1	2	2	2	2
101	6	3	5	1	534	1	2	2	2	2
102	6	3	5	2	2163	1	2	2	2	1
103	3	3	5	2	784	1	2	1	2	1
104	0.5	3	5	2	4565	2	2	2	2	1
105	1	3	5	3	2023	2	2	2	2	2
106	1	3	3	3	520	2	2	2	1	2
107	4	3	3	1	528	1	2	2	1	1
108	3	3	5	1	1	1	2	2	2	2
109	6	3	5	1	1800	2	2	1	2	2
110	2	3	3	2	811	1	2	1	2	2
111	4	2	4	2	641	2	2	2	2	2
112	3	3	5	2	1105	2	2	1	2	1
113	4	3	5	1	558	1	2	1	2	2
114	4	2	6	2	3663	2	2	2	2	2
115	18	3	5	2	1	1	2	1	1	1
116	3	3	5	2	662	1	1	1	2	2
117	2	3	5	1	554	1	1	2	1	2
118	3	3	5	3	1400	1	1	1	2	1
119	0.5	3	5	1	1	1	2	2	2	2
120	6	2	4	2	2707	2	2	2	2	2
121	10	2	4	2	761	1	2	1	2	2
122	6	2	3	2	3339	2	2	2	2	2
123	12	3	5	2	5530	1	2	2	2	1
124	2	3	5	2	1337	1	2	1	2	1
125	8	3	5	2	839	1	2	2	2	1
126	3	3	5	1	527	1	1	1	2	2
127	2	3	3	2	581	2	2	2	2	2
128	1	3	5	1	481	1	2	2	2	2
129	6	2	5	2	620	1	2	1	1	1
130	1	3	5	2	1907	2	2	2	2	2
131	3	3	5	3	2377	1	1	1	2	2
132	3	2	3	2	1	1	2	2	2	2
133	3	2	4	3	4780	1	2	2	2	1
134	12	2	3	2	1	1	2	2	2	1
135	12	3	5	2	235	2	2	2	2	2
136	2	3	5	2	577	1	1	1	2	1
137	2	2	4	2	567	1	1	1	1	1
138	1	3	5	2	1427	1	2	1	2	1
139	3	2	5	2	1308	1	2	1	2	2
140	6	2	3	2	2380	1	2	1	2	1
141	6	3	5	3	1	2	2	2	2	2
142	6	2	4	2	2622	2	2	2	2	2
143	6	3	5	2	792	2	1	2	2	1
144	9	3	5	2	326	2	2	1	2	2
145	3	2	4	2	630	1	2	1	2	1
146	3	2	4	2	1734	2	1	2	2	1
147	0.5	3	4	2	1	1	1	1	2	2
148	24	3	4	1	496	1	2	1	2	2
149	2	3	5	2	534	1	2	1	2	1
150	1	3	5	2	1	1	2	1	2	1
151	1	3	5	2	1	1	2	1	1	1
152	2	3	5	2	435	1	1	1	1	1
153	3	2	4	2	2599	2	2	2	2	2
154	0.5	3	5	2	2394	1	2	2	2	2
155	3	2	4	2	509	1	2	2	2	1
156	3	2	4	1	1	1	2	2	2	2
157	2	3	5	1	1420	1	2	1	2	1
158	4	3	5	2	400	1	2	1	2	2
159	3	2	3	2	448	2	2	1	2	1
160	1	3	3	1	533	2	2	1	2	2
161	4	2	4	1	1	2	2	2	2	1
162	4	2	4	2	230	2	2	2	2	2
163	3	2	4	2	378	1	2	1	2	1
164	6	3	5	2	2390	1	1	1	2	1
165	2	3	5	4	414	1	1	2	1	2
166	6	3	5	2	1785	2	2	2	2	2
167	1	3	5	2	481	1	2	2	2	2
168	3	3	5	1	824	1	1	1	1	2
169	3	3	5	3	826	1	2	1	2	2
170	3	3	5	1	463	1	2	1	1	1
171	1	3	5	3	914	2	2	1	2	2
172	3	2	5	2	485	2	2	1	2	1
173	2	3	3	1	856	1	2	2	2	2
174	3	3	5	1	796	1	2	1	2	1
175	12	2	4	1	486	1	2	2	2	2
176	24	3	5	1	1	1	2	1	2	2
177	12	3	5	2	783	2	2	2	2	2
178	48	3	5	2	671	1	2	1	2	1
179	6	3	5	1	1	2	2	2	2	2
180	1.5	2	4	3	1488	2	2	2	2	2
181	2	3	5	2	863	1	1	1	2	1
182	1	3	5	2	1	1	2	1	2	2
183	4	3	5	2	951	1	2	1	2	1
184	6	3	4	1	418	1	2	1	2	2
185	36	3	5	2	559	1	1	1	1	1
186	6	2	4	2	674	2	2	2	2	2
187	2	3	5	2	729	2	2	2	2	2
188	2	3	5	2	1	2	2	2	2	1
189	6	3	5	3	744	2	2	2	2	1
190	1	2	4	2	859	1	2	1	2	1
191	3	3	5	2	634	1	2	1	2	1
192	2	3	5	2	1496	1	2	1	2	1

193	4	4	4	1	574	1	2	2	2	2
194	1	3	5	3	1436	1	2	2	2	2
195	3	2	4	1	366	1	2	2	2	2
196	0.5	3	5	2	432	2	2	2	2	1
197	1	2	3	2	582	1	2	2	2	2
198	4	3	5	2	481	2	2	2	2	2
199	11	3	5	2	371	1	2	2	2	2
200	2	3	5	3	921	1	2	1	1	2
201	1	3	5	3	5837	1	2	1	1	2
202	6	3	5	2	699	1	2	1	2	2
203	3	3	5	3	524	1	2	2	2	2
204	6	3	4	2	721	2	2	2	2	2
205	1	2	4	4	6998	2	2	2	2	2
206	2	3	4	3	1355	1	1	1	1	1
207	3	3	5	3	906	1	2	2	1	2
208	2	3	5	2	552	1	2	1	2	1
209	12	2	4	2	892	2	2	2	2	2
210	9	3	5	2	209	2	2	2	2	2
211	3	3	5	2	588	2	1	2	1	1
212	3	3	5	3	1	2	2	2	2	2
213	1	2	2	4	1119	2	2	2	2	2
214	1	3	5	3	1417	1	2	1	2	2
215	2	3	5	3	2097	2	2	2	2	2
216	99	3	5	99	1	3	3	3	3	3
217	1	3	5	2	1	2	1	2	2	1
218	2	3	5	3	2746	1	2	2	2	1
219	99	3	5	2	478	2	2	2	2	2
220	99	3	5	2	4177	3	3	3	3	2
221	99	3	5	2	1022	3	3	3	3	1
222	6	3	5	3	953	2	2	2	2	2
223	2	3	5	3	1562	1	2	1	2	1
224	6	3	5	2	621	1	2	1	2	2
225	24	3	5	3	721	2	2	2	2	2
226	2	3	3	2	1140	1	2	1	1	1
227	99	3	5	2	1	3	3	3	3	1
228	99	3	5	99	1	1	2	2	2	3
229	99	3	5	2	531	3	3	3	3	3
230	2	3	5	4	3320	2	2	1	2	2
231	12	3	5	1	783	1	2	2	2	2
232	2	2	4	1	467	1	2	2	2	2
233	1	3	5	1	1	1	2	2	2	2
234	4	3	5	2	1	1	2	2	2	1
235	6	2	4	2	543	2	2	1	2	2
236	3	2	4	2	732	1	2	1	1	1
237	3	3	5	1	588	1	2	1	2	2
238	2	3	5	2	639	2	2	2	2	1
239	6	3	5	2	538	1	1	1	2	1
240	3	2	5	2	522	1	2	1	2	2
241	1	3	5	2	956	1	1	1	2	1
242	4	3	5	2	1065	2	2	1	2	1
243	6	3	5	2	488	2	2	2	2	2

Sr no	Orbit	Skin	Lungs	Bulky	Bulky size	AUTOIM	Hemophag	Hypergan	Stage	IPI	PIT	IPTCLP	mPIT
	1- Inv	1- Inv	1- Inv	1- Yes		1- AIHA	1- Yes	1- Yes	99-NIR	A>60	AGE>60	Age> 60	Age>60
	2-Not	2- Not	2-Not	2- No		2- ITP	2-No	2-No/NA		PS >=2	PS>1	PS>1	PS >1
	3- NIR	3- NIR	3- NIR			3- EVANS				LDH	BM	Plt<1.5lk	LDH
						4- NIL				3/4 stage	LDH		Ki67> 75
										EN>1	1- Low (0)	1-low (0)	1- Low (0/1)
										1- low (0/1)	2- low Int (1)	2=lo int (1)	2- Int (2)
										2- Low int (2)	3- Hi int(2)	3= hi int (2)	3- High (3/4)
										3- Hig int (3)	4- Hi (3/4)	4= high (3)	
					99= NA					4- High (4/5)			
1	1	2	2	2	99	4	2	2	99	99	99	99	99
2	2	2	2	2	99	4	2	2	3	2	2	2	1
3	2	2	2	2	99	4	2	2	99	99	99	3	99
4	2	2	2	2	99	4	2	2	99	99	99	2	99
5	1	2	2	2	99	4	2	2	2	3	3	2	99
6	2	2	2	2	99	4	2	2	1	1	2	2	99
7	2	2	2	2	99	4	2	2	2	2	3	2	2
8	1	2	2	2	99	4	2	2	2	3	3	3	2
9	1	2	2	2	99	4	2	2	2	3	3	3	2
10	2	2	2	2	99	4	2	2	99	99	99	2	3
11	2	2	2	2	99	4	2	2	1	1	2	2	2
12	2	2	2	2	99	4	2	2	99	99	99	2	2
13	2	2	1	2	99	4	2	2	4	99	99	2	99
14	2	2	2	2	99	4	2	2	1	1	2	2	1
15	2	2	2	2	99	4	2	2	4	4	99	2	2
16	2	2	2	2	99	4	2	2	4	3	4	2	3
17	2	2	2	2	99	4	2	2	1	2	3	3	99
18	2	2	2	2	99	4	2	2	2	1	1	2	1
19	2	2	2	2	99	4	2	2	99	99	99	99	99
20	2	2	2	2	99	4	2	2	4	4	4	3	99
21	2	2	2	2	99	4	2	2	4	3	4	4	3
22	2	2	2	2	99	4	2	2	3	2	2	2	99
23	2	2	2	2	99	4	2	2	4	3	3	2	2
24	2	2	2	2	99	4	2	2	4	3	3	3	2
25	2	2	2	2	99	4	2	2	4	3	4	2	2
26	2	2	2	2	99	4	2	2	4	4	4	2	2
27	2	2	2	2	99	1	2	2	4	4	4	3	2
28	2	2	2	2	99	4	2	2	4	3	4	3	3
29	2	2	2	2	99	4	2	2	4	4	4	3	2
30	2	2	2	2	99	4	2	2	1	1	2	2	99
31	2	2	2	2	99	4	2	2	1	99	99	99	99
32	2	2	2	2	99	4	2	2	2	1	2	1	1
33	2	2	2	2	99	4	2	2	99	99	99	1	99
34	2	2	2	2	99	4	2	2	2	3	3	2	2
35	2	2	2	2	99	4	2	2	1	1	2	2	99
36	2	2	2	2	99	4	2	2	1	1	2	1	2
37	2	2	2	2	99	4	1	2	4	3	3	3	99
38	2	2	2	2	99	4	2	2	2	3	3	2	3
39	2	2	2	2	99	4	2	2	2	1	2	2	99
40	2	2	2	2	99	4	2	2	4	4	4	2	3
41	2	2	2	2	99	4	2	2	1	2	3	2	2
42	2	2	2	2	99	4	2	2	99	99	99	1	99
43	2	2	2	2	99	4	2	2	1	1	2	3	99
44	2	2	2	2	99	4	2	2	2	2	3	3	99
45	2	2	2	2	99	4	2	2	1	99	99	3	99
46	2	2	2	2	99	4	2	2	4	3	4	2	3
47	2	2	2	2	99	4	2	2	99	99	99	1	3
48	2	1	2	2	99	4	2	2	4	4	3	3	3
49	2	2	2	2	99	4	2	2	1	99	99	2	99
50	2	2	2	2	99	4	2	2	99	99	99	2	2
51	2	2	2	2	99	4	2	2	4	3	3	3	99
52	2	2	2	2	99	4	2	2	2	1	2	1	99
53	2	2	2	2	99	4	2	2	3	3	3	2	99
54	2	2	2	2	99	4	2	2	3	3	3	3	2
55	2	2	2	2	99	4	2	2	99	99	99	1	1
56	3	3	3	2	99	4	2	2	99	99	99	99	99
57	2	2	2	2	99	4	1	2	4	3	4	3	2
58	2	2	1	2	99	4	2	2	4	3	2	2	2
59	2	2	2	2	99	4	2	2	4	2	3	1	2
60	2	2	2	2	99	4	2	2	2	1	2	2	99
61	2	2	2	2	99	4	1	2	4	4	3	2	2
62	2	2	2	2	99	4	2	2	4	3	3	3	99
63	2	2	2	2	99	4	2	2	4	3	4	3	99
64	2	2	2	2	99	4	2	2	4	4	4	3	3
65	2	2	2	2	99	4	2	2	4	3	4	2	99
66	2	2	2	2	99	4	2	2	99	99	99	3	99
67	2	2	2	2	99	4	2	2	99	99	99	2	99
68	2	2	2	2	99	4	2	2	4	1	1	1	1
69	2	2	2	2	99	4	2	2	4	4	4	3	99
70	2	2	2	1	99	4	2	2	3	3	3	2	2
71	2	2	2	2	99	4	2	2	3	99	99	2	99
72	2	2	2	2	99	4	2	2	2	3	4	4	3
73	2	2	2	2	99	1	2	2	3	3	3	3	99
74	2	2	2	2	99	4	2	2	3	1	1	1	99
75	2	2	2	2	99	4	2	2	4	4	4	3	99
76	2	2	2	2	99	4	2	2	4	4	4	3	4
77	2	2	2	2	99	4	2	2	4	3	4	4	99
78	2	1	2	2	99	4	2	2	1	1	1	1	99
79	2	2	2	2	99	4	2	2	1	2	3	2	99
80	2	2	2	2	99	4	2	2	99	99	99	3	99
81	2	2	2	2	99	4	2	2	2	99	99	2	99
82	2	2	2	2	99	4	2	2	1	1	2	1	2
83	2	2	2	2	99	4	2	2	2	2	3	2	99
84	2	2	1	2	99	4	2	2	4	4	4	3	3
85	2	2	2	2	99	4	2	2	2	3	3	2	99
86	2	2	2	2	99	4	2	2	3	3	3	3	2
87	2	2	2	2	99	4	2	2	3	2	2	2	99
88	2	2	2	2	99	4	2	2	3	3	3	2	99
89	2	2	1	2	99	4	2	2	4	3	3	2	99
90	2	2	2	2	99	4	2	2	99	99	99	3	99
91	2	2	2	2	99	4	2	2	99	99	99	4	99

92	2	2	2	2	99	4	2	2	99	99	99	1	2
93	2	2	2	2	99	4	2	2	4	4	3	2	3
94	2	2	2	2	99	4	2	2	4	4	3	2	99
95	2	2	2	2	99	4	2	2	4	3	4	3	3
96	2	2	2	2	99	4	2	2	4	3	3	3	2
97	1	2	2	2	99	4	2	2	1	2	2	1	1
98	2	2	2	2	99	4	2	2	2	2	3	2	2
99	2	2	2	2	99	4	2	2	2	1	1	1	1
100	2	2	2	2	99	4	2	2	4	3	3	2	2
101	2	2	2	2	99	4	2	2	1	1	2	2	1
102	2	2	2	2	99	4	2	2	4	3	3	2	99
103	2	2	1	2	99	4	2	2	4	4	3	2	3
104	2	2	2	2	99	4	1	2	4	3	3	2	99
105	2	2	2	2	99	4	2	2	4	3	4	3	99
106	2	2	2	2	99	4	2	2	99	99	99	3	99
107	2	2	2	2	99	4	2	2	3	3	3	2	3
108	2	2	2	2	99	4	2	2	99	99	99	2	99
109	2	2	2	2	99	4	2	2	99	99	99	99	99
110	2	2	2	2	99	4	2	2	4	4	4	3	99
111	2	2	2	2	99	4	2	2	4	3	4	3	2
112	2	2	2	2	99	4	1	2	4	3	3	2	3
113	2	2	2	2	99	4	2	2	99	99	99	2	2
114	2	2	2	2	99	4	2	2	4	3	4	3	99
115	2	2	1	2	99	4	2	2	4	99	99	2	99
116	2	2	2	2	99	4	2	2	4	3	3	2	2
117	2	2	2	2	99	4	2	2	2	1	2	1	2
118	2	2	2	2	99	4	1	2	4	3	3	3	3
119	2	2	2	2	99	4	2	2	99	99	99	1	99
120	2	2	2	2	99	4	2	2	4	3	4	3	2
121	2	2	2	2	99	4	2	2	4	3	4	2	3
122	2	2	2	2	99	4	1	2	4	3	4	3	4
123	2	2	2	2	99	4	2	2	4	4	3	2	3
124	2	2	2	2	99	4	2	2	3	3	3	2	2
125	2	2	2	2	99	4	2	2	4	3	4	2	2
126	2	2	2	1	15	4	2	2	3	2	2	1	2
127	2	2	2	2	99	4	2	1	99	99	99	3	3
128	2	2	2	2	99	4	2	2	1	2	2	1	2
129	2	2	2	2	99	4	2	2	3	4	4	3	99
130	2	2	2	2	99	4	2	2	4	3	4	3	99
131	2	1	2	2	99	4	2	2	4	3	4	2	3
132	2	2	2	2	99	4	2	2	99	99	99	3	99
133	2	2	2	2	99	4	2	2	99	4	99	2	99
134	2	2	2	2	99	4	2	2	3	99	99	3	99
135	2	2	2	2	99	4	2	2	4	2	3	3	99
136	2	1	2	2	99	4	2	2	3	3	3	2	2
137	2	2	1	2	99	4	2	2	4	3	3	2	2
138	2	2	2	2	99	4	2	2	4	3	3	2	3
139	2	2	2	2	99	4	2	2	99	99	99	2	3
140	2	2	2	2	99	4	2	2	4	3	4	3	3
141	2	2	2	2	99	4	2	2	4	99	99	3	99
142	2	2	2	2	99	4	2	2	4	4	4	3	99
143	2	2	2	2	99	4	2	2	4	3	3	2	2
144	2	2	2	2	99	4	2	2	4	3	3	3	99
145	2	2	2	2	99	4	2	2	4	3	4	3	99
146	2	2	2	2	99	4	2	2	4	3	4	3	99
147	2	2	2	2	99	4	2	2	99	99	99	3	99
148	2	2	2	2	99	4	2	2	99	99	99	1	1
149	2	2	2	2	99	4	2	2	3	3	3	2	2
150	2	2	2	2	99	4	2	2	4	99	99	2	99
151	2	2	2	2	99	4	2	2	4	99	99	3	99
152	2	1	2	2	99	4	2	2	3	2	3	2	2
153	2	2	2	2	99	4	2	2	4	3	4	3	99
154	2	2	2	2	99	4	2	2	99	99	99	2	2
155	2	2	2	2	99	4	2	2	4	4	4	3	3
156	1	2	2	2	99	4	2	2	99	99	99	1	99
157	2	2	2	2	99	4	2	2	4	2	3	1	1
158	2	2	2	2	99	4	2	2	3	2	2	2	99
159	2	2	2	2	99	4	2	2	4	3	4	3	2
160	2	2	2	2	99	4	2	2	2	1	2	1	2
161	2	2	2	2	99	4	2	2	4	99	99	1	99
162	2	2	2	2	99	4	2	2	4	3	4	4	3
163	2	2	2	2	99	4	2	2	3	2	2	3	1
164	2	1	2	2	99	4	2	2	4	4	4	2	3
165	2	2	1	1	99	4	2	2	4	3	3	2	99
166	2	2	2	2	99	4	2	2	4	3	4	3	3
167	2	1	2	2	99	4	2	2	4	4	3	2	3
168	2	2	2	2	99	4	2	2	2	1	2	1	2
169	2	2	2	2	99	4	2	2	4	4	4	2	3
170	2	2	2	2	99	4	2	2	3	1	1	1	1
171	2	1	2	2	99	4	2	2	4	4	4	2	99
172	2	2	2	2	99	4	2	2	3	3	3	2	3
173	2	2	2	1	10	4	2	2	1	1	2	2	99
174	2	2	2	1	11	4	2	2	3	2	2	2	2
175	2	2	2	2	99	4	2	2	1	1	2	2	1
176	2	2	2	2	99	4	2	2	99	99	1	99	99
177	2	2	2	2	99	4	2	2	1	2	3	2	3
178	2	2	2	2	99	4	2	2	3	3	3	2	2
179	2	2	2	2	99	4	2	2	99	99	99	1	99
180	2	2	2	2	99	4	1	2	4	3	4	3	99
181	2	2	2	2	99	4	2	2	99	99	99	2	3
182	2	1	2	2	99	4	2	2	4	99	99	4	3
183	2	2	2	2	99	4	2	2	3	4	4	3	3
184	2	2	2	2	99	4	2	2	2	1	1	1	99
185	2	2	2	2	99	1	2	2	4	3	4	3	2
186	2	2	2	2	99	4	2	2	4	4	4	4	99
187	2	2	2	2	99	4	2	2	1	3	4	3	3
188	2	2	2	2	99	4	2	2	99	99	99	2	99
189	2	2	2	2	99	4	2	2	4	3	4	3	99
190	2	2	2	2	99	4	2	2	3	3	3	3	2
191	2	2	2	2	99	4	2	2	99	4	99	4	99
192	2	1	2	2	99	4	2	2	4	3	4	2	3

193	2	2	2	2	99	4	2	2	4	2	3	1	99
194	2	2	2	2	99	4	2	2	4	4	4	3	3
195	2	2	2	2	99	4	2	2	2	1	1	1	1
196	2	2	2	2	99	4	2	2	4	3	3	2	3
197	2	2	2	2	99	4	2	2	4	3	4	2	3
198	2	2	2	2	99	4	2	2	1	2	3	2	3
199	2	2	2	2	99	4	2	2	4	2	3	2	2
200	2	2	2	2	99	4	2	2	4	4	3	2	3
201	2	2	2	2	99	4	2	2	4	4	4	4	99
202	2	2	2	1	20	4	2	2	4	4	3	3	99
203	2	2	2	2	99	4	2	2	3	4	4	4	3
204	2	2	2	2	99	4	2	2	2	2	3	3	3
205	2	2	2	2	99	4	2	2	4	4	4	2	99
206	2	2	2	2	99	4	2	2	4	3	4	3	2
207	2	2	2	2	99	4	2	2	3	3	3	3	2
208	2	2	2	2	99	4	2	2	4	3	4	3	3
209	2	2	2	2	99	4	2	2	4	3	4	3	99
210	2	2	2	2	99	4	2	2	4	3	3	3	99
211	2	2	2	2	99	4	2	2	3	4	4	3	3
212	2	2	2	2	99	4	2	2	99	99	99	2	99
213	2	2	2	2	99	4	2	2	4	3	4	3	99
214	2	2	2	2	99	4	2	2	3	3	3	3	3
215	2	2	2	2	99	4	2	2	4	3	4	3	99
216	3	3	3	99	99	4	2	2	99	99	99	99	99
217	2	2	2	2	99	4	2	2	99	99	99	2	99
218	2	2	2	2	99	4	1	2	3	3	3	3	3
219	2	2	2	2	99	4	2	2	4	3	4	3	99
220	3	3	3	2	99	4	2	2	4	3	4	3	99
221	3	3	3	2	99	4	2	2	99	99	4	3	3
222	2	2	2	2	99	1	2	1	4	3	4	2	2
223	2	2	2	2	99	2	2	2	4	3	4	3	2
224	2	2	2	2	99	4	2	2	99	4	99	3	3
225	2	2	2	2	99	4	2	2	4	3	4	3	2
226	2	2	2	2	99	4	2	2	3	3	3	2	2
227	3	3	3	2	99	4	2	2	99	99	99	99	99
228	3	3	3	2	99	4	2	2	99	99	99	99	99
229	3	3	3	32	99	4	2	2	4	3	4	3	2
230	2	1	2	2	99	4	2	2	4	4	4	3	3
231	2	2	2	2	99	4	1	2	1	2	2	1	2
232	2	2	2	2	99	4	2	2	1	1	2	1	2
233	2	2	2	2	99	4	2	2	1	99	99	99	99
234	2	2	2	2	99	4	2	2	4	99	99	99	99
235	2	1	2	2	99	4	2	2	4	4	3	2	2
236	2	2	2	2	99	4	2	1	3	3	3	2	3
237	2	2	2	2	99	4	2	2	2	1	2	1	2
238	2	2	2	2	99	4	2	2	2	2	3	2	3
239	2	2	2	2	99	4	2	2	4	4	4	2	99
240	2	2	2	2	99	4	2	1	3	3	3	2	2
241	2	2	2	2	99	4	2	2	4	3	4	2	2
242	2	2	2	2	99	4	2	2	4	3	4	2	2
243	2	1	2	2	99	4	2	2	4	4	4	3	2

Sr no	NKPI	PIAI	HBsAg	HCV	HIV	Hb	TLC	PLT	RADIOLOG	Chemo	CNS chemo	DO starting	Interim
	B sym	B Sym	1- Pos	1- Pos	1- Pos				1- Ab dia	1- CHOP	1- IT MTX		1- CR
	LDH	Plt<1.5	2- Neg	2- Neg	2- Neg				2- Bel dia	2- Lost f/up	2- TIT		2- PR
	Reg LN	Age>60	3- Not	3- Not	3- Not do				3- Both	3- Not given	3- Not give		
	III/IV	EN>1							4- Not	4- CHOEP			3- PD
	1- low (0)	PS>=2								5- CHOP			4- SD
	2- Low int (1)	1 = 0/1 (Lo)											5- Not Ass
	3- Hig int (2)	2=2-5(hi)								7- CVP	12-Cyclo dex		99- NA
	4- High (3/4)									8- DA- EPOCH	11- ALL protocol		
										9- RT	10- CHOP+RT		
1	99	99	2	2	2	7.2	99	99	1	2	3		99
2	99	2	2	2	2	11.5	8700	157000	3	2	3		99
3	99	99	3	3	3	14	3000	139000	1	2	3		99
4	99	99	2	2	2	14.4	14400	382000	2	2	3		99
5	99	2	2	2	2	11.6	8000	238000	1	4	1	11/11/12	3
6	1	99	2	2	2	10.8	7900	244000	1	5	1	11/30/12	5
7	4	99	2	2	2	13.4	6200	323000	1	5	1	07/18/12	3
8	3	99	2	2	2	12.3	4300	145000	1	1	1	06/18/12	99
9	2	99	2	2	2	11	7600	143000	1	7	1	04/14/12	99
10	4	99	2	2	2	4.1	17000	487000	2	1	3	05/01/10	99
11	2	99	2	2	2	9.4	8500	377000	1	1	3	01/29/09	99
12	99	99	2	2	2	11.8	7600	184000	3	2	3		99
13	99	99	2	2	2	16.3	6200	267000	3	2	3		99
14	99	99	2	2	2	12.1	9700	194000	1	1	3	03/06/12	3
15	99	99	2	2	2	9.4	6000	248000	3	1	3	11/04/11	3
16	99	99	1	2	2	15	8100	226000	2	1	3	10/06/09	1
17	99	99	2	2	2	9.4	1100	100000	1	1	3	01/11/13	5
18	99	99	2	2	2	15.1	7900	245000	1	2	3		99
19	99	99	2	2	2	12.1	99	99	4	2	3		99
20	99	99	2	2	2	8.8	13900	33000	3	2	3		99
21	99	99	2	2	2	8.8	24200	96000	3	3	3		99
22	99	99	2	2	2	13	4600	250000	3	1	3	09/19/11	5
23	99	2	2	2	2	10.7	13200	260000	3	2	3		99
24	99	2	2	2	2	10.9	6500	82000	3	3	3		99
25	99	99	2	2	2	11.4	11000	180000	3	1	3	02/23/12	99
26	99	2	2	2	2	13.7	19200	258000	3	5	3	10/13/12	99
27	99	2	2	2	2	7.5	8900	120000	3	3	3		99
28	99	99	2	2	2	7.8	14700	71000	3	7	3	02/13/13	99
29	4	99	2	2	2	6.8	6400	31000	3	2	3		99
30	2	99	2	2	2	12.9	5000	199000	1	1	1	09/28/10	3
31	99	99	2	2	2	14.6	10100	99	1	2	3		99
32	3	99	2	2	2	13.7	7500	261000	1	1	3	04/07/09	5
33	99	99	2	2	2	10.6	3800	190000	1	2	3		99
34	4	99	2	2	2	11.2	5700	192000	1	1	2	01/03/09	3
35	3	99	2	2	2	10.7	4300	147000	2	1	3	05/02/11	99
36	99	99	2	2	2	13.1	3800	181000	1	2	3		99
37	4	99	2	2	2	7.4	1700	20000	2	1	3	09/17/10	5
38	3	99	2	2	2	11.6	4300	369000	2	1	3	04/10/09	99
39	3	99	2	2	2	12.2	16600	292000	1	1	3	07/20/07	99
40	4	99	2	2	2	9.6	8900	157000	3	2	3		99
41	2	99	2	2	2	10.9	8700	317000	1	2	3		99
42	99	99	2	2	2	13	7400	304000	1	2	3		99
43	2	99	2	2	2	9.6	900	50000	2	1	3	06/15/10	5
44	99	99	2	2	2	11.9	17200	61000	2	1	3	11/02/10	2
45	99	99	2	2	2	12.6	6300	97000	1	2	3		99
46	3	99	2	2	2	11.1	2400	163000	1	5	3	07/26/11	3
47	99	99	2	2	2	10.6	3800	196000	1	2	3		99
48	4	99	2	2	2	12.8	3300	141000	3	1	3	05/09/09	99
49	99	99	2	2	2	11.9	6000	111000	1	2	3		99
50	99	99	2	2	2	11.9	9400	173000	3	2	3		99
51	99	99	2	2	2	7.1	1100	34000	2	1	3	10/29/11	5
52	99	99	2	2	2	9.3	6700	167000	1	5	3	11/04/11	1
53	99	99	2	2	2	12.7	14000	172000	3	2	3		99
54	99	99	2	2	2	10.7	4800	125000	3	1	3	10/25/11	2
55	99	99	2	2	2	16.6	5100	181000	1	2	3		99
56	99	99	2	2	2	9.1	99	99	4	2	3		99
57	99	99	2	2	2	5.7	2000	11000	2	1	3	01/11/12	3
58	99	99	1	2	2	13.7	7700	146000	3	5	3	09/28/07	2
59	4	99	2	2	2	11.6	5700	254000	1	1	3	09/10/10	99
60	99	99	2	2	2	10.9	21800	396000	2	1	3	12/26/11	2
61	99	99	2	2	2	9.1	3400	177000	3	2	3		99
62	99	99	2	2	2	6.7	2900	121000	2	1	3	12/22/11	2
63	99	99	2	2	2	7.7	4500	11000	2	2	3		99
64	99	99	2	2	2	10.5	9500	202000	3	5	3	10/05/07	5
65	99	99	2	2	2	12.4	22500	329000	3	8	3	03/02/12	3
66	99	99	2	2	2	11.2	3700	135000	4	2	3		99
67	99	99	2	2	2	10.6	6000	289000	2	2	3		99
68	99	99	2	2	2	10.2	6500	263000	2	1	3	06/01/12	3
69	99	99	2	2	2	11.2	7200	259000	3	1	3	05/14/12	99
70	99	99	2	2	2	14.4	6200	237000	3	1	3	06/19/12	2
71	99	99	2	2	2	13	7400	288000	3	2	3		99
72	99	99	2	2	2	8.7	1300	86000	2	2	3		99
73	99	2	2	2	2	4.3	9200	147000	3	1	3	10/22/07	5
74	99	99	2	2	2	14.3	8500	192000	3	1	3	07/12/12	1
75	99	99	2	2	2	8.9	6400	11000	2	3	3		99
76	99	99	2	2	2	10.7	24300	58000	2	9	3		99
77	99	99	2	2	2	9.4	3000	15000	2	5	3	11/21/12	5
78	99	99	2	2	2	73.6	7500	207000	1	1	3	08/11/12	2
79	99	99	2	2	2	9.7	18500	590000	2	1	3	08/28/12	99
80	99	2	2	2	2	10.9	9900	60000	3	2	3		99
81	99	99	2	2	2	8	28900	353000	3	2	3		99
82	99	99	2	2	2	15.8	6600	250000	1	1	3	06/29/10	5
83	99	99	2	2	2	9.9	22500	360000	2	1	3	05/05/11	99
84	99	2	2	2	2	9.1	16700	170000	3	1	3	02/05/10	2
85	99	99	2	2	2	12.9	15100	443000	2	10	3	01/10/11	2
86	99	99	2	2	1	11.6	4300	112000	3	1	3	02/23/11	1
87	99	99	2	2	2	12.8	15400	230000	3	1	3	06/02/11	2
88	99	99	2	2	2	12.6	8900	235000	3	1	3	05/02/11	1
89	99	99	2	2	2	14.1	4700	215000	3	1	3	06/25/09	1
90	99	99	2	2	2	7.8	24900	372000	2	3	3		99
91	99	99	2	2	2	7.1	4100	68000	3	3	3		99

92	99	99	2	2	2	10.8	6700	202000	1	2	3		99
93	99	99	2	2	2	11.7	9300	348000	3	1	3	11/13/12	1
94	99	99	2	2	2	9.3	13900	446000	2	2	3		99
95	99	99	2	2	2	9.9	2000	120000	2	3	3		99
96	99	99	2	2	2	9.7	5900	120000	3	1	3	07/08/09	2
97	99	99	2	2	2	14	11100	242000	1	10	2	05/17/09	5
98	99	99	2	2	2	13	4200	159000	2	1	3	08/25/09	2
99	99	99	2	2	2	16.1	9100	658000	2	1	3	10/06/08	2
100	99	99	2	2	2	10.1	6600	427000	3	1	3	10/20/09	2
101	99	99	2	2	2	15.2	7000	130000	1	1	3	12/08/09	2
102	99	99	2	2	1	7	1500	160000	3	3	3		99
103	99	99	2	2	2	13.1	17900	315000	3	1	3	11/19/09	3
104	99	99	2	2	2	10.9	11700	271000	2	1	3	07/24/10	99
105	99	99	2	2	2	11.9	5400	4000	2	3	3		99
106	99	99	3	3	3	11.3	16200	393000	1	3	3		99
107	99	99	2	2	2	15.8	6800	205000	3	2	3		99
108	99	99	2	2	2	12.2	4600	115000	4	2	3		99
109	99	99	3	3	3	99	99	99	4	2	3		99
110	99	2	2	2	2	14.7	14600	250000	3	2	3		99
111	99	99	2	2	2	8.5	1300	63000	2	1	3	02/26/10	3
112	99	99	2	2	2	8.6	3300	47000	3	3	3		99
113	99	99	2	2	2	15.1	6100	147000	4	2	3		99
114	99	99	2	2	2	7.1	3500	59000	2	2	3		99
115	99	99	2	2	2	9.6	4800	200000	3	1	3	01/22/10	99
116	99	1	2	2	2	11.1	13900	165000	3	2	3		99
117	99	99	2	2	2	11.5	8400	277000	1	1	3	05/25/10	2
118	99	99	2	2	2	7.7	3500	149000	3	3	3		99
119	99	99	2	2	2	14.5	10600	155000	4	2	3		99
120	99	99	2	2	2	7.2	23500	146000	2	2	3		99
121	99	99	2	2	2	11.6	9000	331000	1	1	3	03/10/08	3
122	99	99	2	2	2	7.6	4900	86000	2	3	3		99
123	99	99	2	2	2	14	11500	267000	3	2	3		99
124	99	99	2	2	2	10	6300	175000	3	2	3		99
125	99	99	2	2	2	11.9	5100	174000	3	1	3	07/01/08	99
126	99	99	2	2	2	13.2	13500	302000	3	1	3	07/10/08	1
127	99	2	2	2	2	12.5	6800	256000	2	2	3		99
128	99	99	2	2	2	13.6	9400	329000	1	1	2	11/04/08	2
129	99	99	2	2	2	10.7	5900	253000	3	5	3	07/18/09	2
130	99	99	2	2	2	8.8	6600	31000	2	5	3	02/07/09	3
131	99	99	2	2	2	9.9	113400	205000	3	3	3		99
132	99	99	2	2	2	9.6	7200	256000	1	2	3		99
133	99	99	2	2	2	12.8	7800	479000	3	3	3		99
134	99	99	2	2	2	11.6	4000	129000	3	2	3		99
135	99	99	2	2	2	9.9	2500	67000	2	3	3		99
136	99	99	2	2	2	11.4	9200	328000	3	1	3	03/04/09	2
137	99	99	2	2	2	15.1	17200	293000	3	1	3	04/06/09	3
138	99	2	2	2	2	12.5	15000	272000	3	1	3	04/23/09	2
139	99	99	2	2	2	12.8	10900	217000	3	2	3		99
140	99	99	2	2	2	8	7900	133000	3	2	3		99
141	99	99	2	2	2	7.6	5900	218000	2	2	3		99
142	99	99	2	2	2	9.1	7800	73000	2	1	2	07/07/09	2
143	99	99	2	2	2	11.7	9400	274000	3	1	3	07/29/09	1
144	99	99	2	2	2	9.4	6800	95000	3	2	3		99
145	99	99	2	2	2	12.7	8400	146000	3	2	3		99
146	99	99	2	2	2	10.6	2300	15000	3	2	3		99
147	99	99	3	3	3	10.1	12900	297000	4	2	3		99
148	99	99	3	3	3	14.5	13700	190000	3	2	3		99
149	99	2	2	2	2	10.9	15500	283000	3	2	3		99
150	99	99	2	2	1	9.5	7200	193000	3	2	3		99
151	99	99	2	2	2	7.6	1000	50000	3	2	3		99
152	99	99	2	2	2	8.6	10300	151000	3	2	3		99
153	99	99	3	3	3	9.4	3700	28000	2	3	3		99
154	99	99	2	2	2	8	27500	276000	1	2	3		99
155	99	99	2	2	2	10.4	8300	21000	3	2	3		99
156	99	99	2	2	2	12.2	6100	404000	1	2	3		99
157	99	99	2	2	2	12.7	10300	377000	3	1	3	09/21/10	2
158	99	99	2	2	2	12.6	7100	167000	3	1	3	06/16/07	3
159	99	99	2	2	2	9.8	7100	438000	3	3	3		99
160	99	99	2	2	2	13.7	5200	223000	1	1	3	05/23/07	5
161	99	99	2	2	2	11.4	13900	313000	3	2	3		99
162	99	99	2	2	2	7.4	2500	135000	2	7	3	06/12/07	5
163	99	99	2	2	1	11.6	8500	103000	3	1	3	06/15/07	1
164	99	99	2	2	2	12.7	6000	286000	3	1	3	06/21/07	2
165	99	99	2	2	2	10.5	8100	258000	1	1	3	05/03/07	3
166	99	99	2	2	2	9.2	11300	41000	2	2	3		99
167	99	99	2	2	2	11.1	39100	314000	1	1	3	06/28/07	3
168	99	99	2	2	2	15.1	7000	377000	1	2	3		99
169	99	99	2	2	2	7.7	3900	164000	3	3	3		99
170	99	99	3	3	3	8.5	11100	583000	3	1	3	01/23/2007	1
171	99	99	2	2	2	10.8	3600	289000	1	5	3	10/27/07	3
172	99	99	2	2	2	10.8	12900	363000	3	7	3	10/10/07	2
173	99	99	2	2	2	15.2	8500	114000	1	10	3	12/04/07	3
174	99	99	2	2	2	10.3	5200	121000	3	1	3	01/04/08	1
175	99	99	2	2	2	13.4	11400	124000	1	1	3	07/18/08	1
176	99	99	2	2	2	11.6	7900	350000	3	2	3		99
177	3	99	2	2	2	12.2	8100	331000	3	1	3	03/08/09	3
178	99	2	2	2	2	12.7	20300	337000	3	1	3	07/04/08	5
179	99	99	2	2	2	12.9	8100	361000	1	2	3		99
180	99	99	2	2	2	8	5800	56000	2	7	3	09/26/12	99
181	99	1	2	2	2	11.8	9600	298000	3	2	3		99
182	99	2	2	2	2	9	15400	89000	3	2	3		99
183	99	99	2	2	2	12.5	13600	163000	3	2	3		99
184	99	99	2	2	2	13.8	8000	306000	1	1	3	12/28/08	2
185	99	2	2	2	2	10.7	4300	84000	3	2	3		99
186	99	99	2	2	2	9.7	4700	87000	2	2	3		99
187	99	99	2	2	2	10.8	3300	189000	1	7	3	11/24/07	99
188	99	99	2	2	2	9.8	13800	497000	2	2	3		99
189	99	99	2	2	2	8	5600	18000	2	2	3		99
190	99	99	2	2	2	6.2	6700	116000	3	1	3	06/12/09	2
191	99	99	2	2	2	12.1	6500	140000	3	3	3		99
192	99	99	2	2	2	13.3	45000	405000	3	2	3		99

193	99	99	2	2	2	8.8	3000	174000	3	1	3	04/03/07	2
194	99	99	3	3	3	4	13000	197000	1	7	3	03/13/07	5
195	99	99	2	2	2	11.5	9500	270000	1	1	3	01/24/07	1
196	99	99	2	2	2	10.1	5400	338000	2	1	3	12/04/07	2
197	99	99	2	2	2	16.5	16700	193000	3	1	1	02/22/11	3
198	99	99	2	2	2	10.7	5000	254000	1	7	3	08/10/10	5
199	99	99	2	2	2	12.6	11900	174000	1	2	3		99
200	99	99	2	2	2	12.7	18700	525000	3	2	3		99
201	99	99	2	2	2	7.3	5700	10000	3	3	1		99
202	99	99	2	2	2	6.5	8500	104000	3	7	3	06/27/08	99
203	99	99	2	2	2	10	3100	60000	3	7	3	08/30/08	99
204	99	99	2	2	2	12.7	7600	303000	2	3	3		99
205	99	99	3	3	3	7.5	2000	203000	2	7	3	12/14/09	99
206	99	99	2	2	2	8.6	5100	37000	3	7	3	11/08/08	99
207	99	99	2	2	2	9.6	8300	192000	3	7	3	01/16/09	99
208	99	99	2	2	2	11.3	3800	50000	3	2	3		99
209	99	99	2	2	2	9.7	8800	35000	2	2	3		99
210	99	99	2	2	2	6.6	5000	62000	2	1	3	08/25/10	99
211	99	99	2	2	2	8.4	8300	229000	3	2	3		99
212	99	2	2	2	2	11.5	18000	389000	2	2	3		99
213	99	99	2	2	2	8.6	2400	55000	2	3	3		99
214	99	99	2	2	2	8	8600	145000	3	3	3		99
215	99	99	2	2	2	13.4	10800	12000	2	11	3	04/28/09	99
216	99	99	2	2	2	9.7	99	99	99	2	3		99
217	99	99	3	3	3	9.4	32200	363000	3	2	3		99
218	99	99	2	2	2	4.8	1900	60000	3	3	3		99
219	99	99	2	2	2	7.6	1700	56000	2	2	3		99
220	99	99	3	3	3	9	4600	57000	4	2	3		99
221	99	99	2	2	2	10.1	5600	151000	99	1	3	09/18/07	99
222	99	2	2	2	2	6.5	7500	158000	2	3	3		99
223	99	2	2	2	2	10	10000	4000	3	2	3		99
224	99	2	2	2	2	12.2	8300	167000	3	2	3		99
225	99	99	1	2	2	8.9	2300	13000	2	3	3		99
226	99	99	2	2	2	13.3	13400	424000	3	2	3		99
227	99	99	2	2	2	13.1	8200	27000	4	2	3		99
228	99	99	2	2	2	11.1	5000	75000	4	2	3		99
229	99	99	2	2	2	9.3	2300	26000	4	2	3		99
230	99	99	2	2	2	11.4	4800	109000	3	3	3		99
231	4	99	2	2	2	12.2	8100	331000	1	11	1	03/03/09	3
232	99	99	2	2	2	13.9	7400	173000	1	10	3	04/15/12	1
233	99	99	2	2	2	99	99	99	1	1	3	11/15/11	2
234	99	99	2	2	2	99	99	99	3	4	3	08/06/12	3
235	99	99	2	2	2	15.1	10400	376000	3	1	3	06/14/13	5
236	99	1	2	2	2	10.7	11700	350000	3	12	3	01/18/08	99
237	99	99	2	2	2	10.9	14300	352000	1	1	3	09/17/07	99
238	99	99	2	2	2	13.9	7700	319000	2	2	3		99
239	99	99	2	2	2	10	10200	420000	3	2	3		99
240	99	2	2	2	2	9.4	10300	668000	3	12	3	11/23/07	4
241	99	2	2	2	2	11.1	9700	314000	3	1	3	08/09/11	5
242	99	99	2	2	2	6.1	15200	389000	3	7	3	03/13/10	2
243	99	99	2	2	2	11.3	2400	131000	3	7	2	01/31/09	4

Sr no	S/E	GCSF	HOSPITALI	Post Rx	DO completion	DO relapse	Salvage chemo	No. of cycles	DO salvage	Post salvage	Auto	Post Auto	Date Auto	Date of relapse post auto	
	1- Fever	1- Req	1- Yes	1- CR			1- DHAP			1- CR	1-Yes	1- CR			
	2- NO	2- Not	2- No	2- PR			2- DHAP +MIME			2- PR	2- No	2- PR			
	3- FEVER, VOMITING		3-NIR				3- BFM-ALL								
	4- NIR	3- NIR	99-NA	3- PD			4- DHAP+ hyperCVAD+ CSA Dexa			3- PD		3- PD			
	5-TLS	99-NA		4- SD			5- CHOP			4- SD		4- SD			
	99-NA			5- Not Assessed			6- GCD+Alemtuzumab+DHAP								
1	99	99	99	99			99	99		99	99	99			
2	99	99	99	99			99	99		99	99	99			
3	99	99	99	99			99	99		99	99	99			
4	99	99	99	99			99	99		99	99	99			
5	1	1	1	99			1	1	01/23/13	3	2	99			
6	1	1	1	99			99	99		99	99	99			
7	1	1	1	99			99	99		99	99	99			
8	2	1	1	99			99	99		99	99	99			
9	99	99	99	99			99	99		99	99	99			
10	99	99	99	1	11/30/10	03/06/12	99	99		99	99	99			
11	99	99	99	1	09/11/09		99	99		99	99	99			
12	99	99	99	99			99	99		99	99	99			
13	99	99	99	99			99	99		99	99	99			
14	1	1	1	3	07/03/12		99	99		99	99	99			
15	99	99	99	99			99	99		99	99	99			
16	99	99	2	1	01/19/10	10/08/11	2	3	10/08/11	1	1	1	02/23/12	10/28/13	
17	3	1	2	1	05/14/13		99	99		99	99	99			
18	99	99	99	99			99	99		99	99	99			
19	99	99	99	99			99	99		99	99	99			
20	99	99	99	99			99	99		99	99	99			
21	99	99	99	99			99	99		99	99	99			
22	2	2	2	1	01/13/12	05/14/12	99	99		99	99	99			
23	99	99	99	99			99	99		99	99	99			
24	99	99	99	99			99	99		99	99	99			
25	2	1	2	99			99	99		99	99	99			
26	1	1	1	99			99	99		99	99	99			
27	99	99	99	99			99	99		99	99	99			
28	1	2	2	99			99	99		99	99	99			
29	99	99	99	99			99	99		99	99	99			
30	2	2	2	99			99	99		99	99	99			
31	99	99	99	99			99	99		99	99	99			
32	2	2	2	1	07/24/09		99	99		99	99	99			
33	99	99	99	99			99	99		99	99	99			
34	1	1	1	99			99	99		99	99	99			
35	1	2	1	99			99	99		99	99	99			
36	99	99	99	99			99	99		99	99	99			
37	1	1	1	1	12/31/10	08/16/12	99	99		99	99	99			
38	1	1	1	99			99	99		99	99	99			
39	1	1	1	99			99	99		99	99	99			
40	99	99	99	99			99	99		99	99	99			
41	99	99	99	99			99	99		99	99	99			
42	99	99	99	99			99	99		99	99	99			
43	1	1	2	1	09/28/10	10/28/11	99	99		99	99	99			
44	2	2	2	1	02/15/11		99	99		99	99	99			
45	99	99	99	99			99	99		99	99	99			
46	1	1	1	99			99	99		99	99	99			
47	99	99	99	99			99	99		99	99	99			
48	1	1	1	99			99	99		99	99	99			
49	99	99	99	99			99	99		99	99	99			
50	99	99	99	99			99	99		99	99	99			
51	1	1	1	3	02/01/12		99	99		99	99	99			
52	2	1	2	1	02/28/12	08/22/12	99	99		99	99	99			
53	99	99	99	99			99	99		99	99	99			
54	1	1	1	3	02/10/12		99	99		99	99	99			
55	99	99	99	99			99	99		99	99	99			
56	99	99	99	99			99	99		99	99	99			
57	1	1	1	99			99	99		99	99	99			
58	2	2	2	3	02/01/08		99	99		99	99	99			
59	1	1	1	99			99	99		99	99	99			
60	1	1	2	1	04/13/12		99	99		99	99	99			
61	99	99	99	99			99	99		99	99	99			
62	1	1	1	3	04/10/12		99	99		99	99	99			
63	99	99	99	99			99	99		99	99	99			
64	2	2	2	1	02/18/08		99	99		99	99	99			
65	1	1	1	99			1	1	05/04/12	3	99	99			
66	99	99	99	99			99	99		99	99	99			
67	99	99	99	99			99	99		99	99	99			
68	2	2	2	1	09/14/12	03/11/13	1	2	03/19/13	1	1	1	06/05/13	08/02/13	
69	1	1	1	99			99	99		99	99	99			
70	1	1	1	99			2	2	10/08/12	3	99	99			
71	99	99	99	99			99	99		99	99	99			
72	99	99	99	99			99	99		99	99	99			
73	3	1	1	99			99	99		99	99	99			
74	2	1	2	1	10/30/12		99	99		99	99	99			
75	99	99	99	99			99	99		99	99	99			
76	99	99	99	99			99	99		99	99	99			
77	2	1	2	1	03/11/13		99	99		99	99	99			
78	2	1	2	1	11/27/12		99	99		99	99	99			
79	1	1	1	99			99	99		99	99	99			
80	99	99	99	99			99	99		99	99	99			
81	99	99	99	99			99	99		99	99	99			
82	2	2	2	1	10/12/10		99	99		99	99	99			
83	1	1	1	99			99	99		99	99	99			
84	1	1	1	1	05/25/10		99	99		99	99	99			
85	2	2	2	1	04/26/11		99	99		99	99	99			
86	2	1	2	1	06/07/11		99	99		99	99	99			
87	1	1	1	1	10/04/11		99	99		99	99	99			
88	2	1	2	1	08/16/11		99	99		99	99	99			
89	2	1	2	1	10/08/09		99	99		99	99	99			
90	99	99	99	99			99	99		99	99	99			
91	99	99	99	99			99	99		99	99	99			

92	99	99	99	99			99	99		99	99	99				
93	2	1	2	1	03/12/13	04/23/13	99	99		99	99	99				
94	99	99	99	99			99	99		99	99	99				
95	99	99	99	99			99	99		99	99	99				
96	2	2	2	1	10/30/09		99	99		99	99	99				
97	2	1	2	1	09/01/09		99	99		99	99	99				
98	1	1	1	1	12/11/09		99	99		99	99	99				
99	2	1	2	1	01/20/09		99	99		99	99	99				
100	1	1	1	1	02/02/10		99	99		99	99	99				
101	2	2	2	1	03/23/10		99	99		99	99	99				
102	99	99	99	99			99	99		99	99	99				
103	1	1	2	99			99	99		99	99	99				
104	1	1	1	99			99	99		99	99	99				
105	99	99	99	99			99	99		99	99	99				
106	99	99	99	99			99	99		99	99	99				
107	99	99	99	99			99	99		99	99	99				
108	99	99	99	99			99	99		99	99	99				
109	99	99	99	99			99	99		99	99	99				
110	99	99	99	99			99	99		99	99	99				
111	2	1	2	99			2	2	06/19/10	3	99	99				
112	99	99	99	99			99	99		99	99	99				
113	99	99	99	99			99	99		99	99	99				
114	99	99	99	99			99	99		99	99	99				
115	99	99	99	99			99	99		99	99	99				
116	99	99	99	99			99	99		99	99	99				
117	1	1	1	5	09/21/10		99	99		99	99	99				
118	99	99	99	99			99	99		99	99	99				
119	99	99	99	99			99	99		99	99	99				
120	99	99	99	99			99	99		99	99	99				
121	4	4	4	99			99	99		99	99	99				
122	99	99	99	99			99	99		99	99	99				
123	99	99	99	99			99	99		99	99	99				
124	99	99	99	99			99	99		99	99	99				
125	2	1	2	99			99	99		99	99	99				
126	2	2	2	1	10/17/08		99	99		99	99	99				
127	99	99	99	99			99	99		99	99	99				
128	1	1	1	1	03/06/09	03/31/09	99	99		99	99	99				
129	4	1	2	1	12/03/09	07/09/10	99	99		99	99	99				
130	1	1	1	99			99	99		99	99	99				
131	99	99	99	99			99	99		99	99	99				
132	99	99	99	99			99	99		99	99	99				
133	99	99	99	99			99	99		99	99	99				
134	99	99	99	99			99	99		99	99	99				
135	99	99	99	99			99	99		99	99	99				
136	2	1	2	5	06/19/09		99	99		99	99	99				
137	2	2	2	99			99	99		99	99	99				
138	2	1	2	1	08/07/09		99	99		99	99	99				
139	99	99	99	99			99	99		99	99	99				
140	99	99	99	99			99	99		99	99	99				
141	99	99	99	99			99	99		99	99	99				
142	2	1	2	3	11/10/09		99	99		99	99	99				
143	5	1	1	1	11/17/09	01/27/10	99	99		99	99	99				
144	99	99	99	99			99	99		99	99	99				
145	99	99	99	99			99	99		99	99	99				
146	99	99	99	99			99	99		99	99	99				
147	99	99	99	99			99	99		99	99	99				
148	99	99	99	99			99	99		99	99	99				
149	99	99	99	99			99	99		99	99	99				
150	99	99	99	99			99	99		99	99	99				
151	99	99	99	99			99	99		99	99	99				
152	99	99	99	99			99	99		99	99	99				
153	99	99	99	99			99	99		99	99	99				
154	99	99	99	99			99	99		99	99	99				
155	99	99	99	99			99	99		99	99	99				
156	99	99	99	99			99	99		99	99	99				
157	2	1	2	1	01/07/11		99	99		99	1	1	03/18/11	08/06/12		
158	1	1	1	99			1	1	09/13/07	3	99	99				
159	99	99	99	99			99	99		99	99	99				
160	1	1	2	1	09/04/07		99	99		99	99	99				
161	99	99	99	99			99	99		99	99	99				
162	2	2	2	3	01/16/08		99	99		99	99	99				
163	2	1	2	1	10/05/07		99	99		99	99	99				
164	2	2	2	5	09/28/07		99	99		99	99	99				
165	1	1	1	99			99	99		99	99	99				
166	99	99	99	99			99	99		99	99	99				
167	2	1	2	99			99	99		99	99	99				
168	99	99	99	99			99	99		99	99	99				
169	99	99	99	99			99	99		99	99	99				
170	2	2	2	1	11/20/07		99	99		99	99	99				
171	2	2	2				99	99		99	99	99				
172	4	2	2	3	02/02/08		99	99		99	99	99				
173	2	2	2	99			99	99		99	99	99				
174	1	2	1	1	04/19/08		99	99		99	99	99				
175	2	2	2	1	11/07/08		99	99		99	99	99				
176	99	99	99	99			99	99		99	99	99				
177	2	2	2	99			3	99	04/04/09	99	99	99				
178	2	2	2	99	12/14/08		99	99		99	99	99				
179	99	99	99	99			99	99		99	99	99				
180	1	2	1	99			99	99		99	99	99				
181	99	99	99	99			99	99		99	99	99				
182	99	99	99	99			99	99		99	99	99				
183	99	99	99	99			99	99		99	99	99				
184	2	2	2	1	04/14/09	05/31/10	99	99		99	99	99				
185	99	99	99	99			99	99		99	99	99				
186	99	99	99	99			99	99		99	99	99				
187	1	2	1	99			99	99		99	99	99				
188	99	99	99	99			99	99		99	99	99				
189	99	99	99	99			99	99		99	99	99				
190	2	2	2	2	10/02/09		99	99		99	99	99				
191	99	99	99	99			99	99		99	99	99				
192	99	99	99	99			99	99		99	99	99				

193	2	2	2	1	08/14/07		99	99		99	99	99			
194	1	2	1				99	99		99	99	99			
195	2	1	2	1	05/08/07		99	99		99	99	99			
196	1	1	1	1	03/18/08	08/24/09	1	1	08/25/09	99	99	99			
197	1	2	1	3	06/03/11		99	99		99	99	99			
198	2	1	2	99			99	99		99	99	99			
199	99	99	99	99			99	99		99	99	99			
200	99	99	99	99			99	99		99	99	99			
201	99	99	99	99			99	99		99	99	99			
202	99	99	99	99			99	99		99	99	99			
203	1	99	99	99			99	99		99	99	99			
204	99	99	99	99			99	99		99	99	99			
205	2	1	1	99			99	99		99	99	99			
206	1	1	1	99			99	99		99	99	99			
207	2	2	2	99			99	99		99	99	99			
208	99	99	99	99			99	99		99	99	99			
209	99	99	99	99			99	99		99	99	99			
210	1	1	1	99			99	99		99	99	99			
211	99	99	99	99			99	99		99	99	99			
212	99	99	99	99			99	99		99	99	99			
213	99	99	99	99			99	99		99	99	99			
214	99	99	99	99			99	99		99	99	99			
215	2	2	1	99			99	99		99	99	99			
216	99	99	99	99			99	99		99	99	99			
217	99	99	99	99			99	99		99	99	99			
218	99	99	99	99			99	99		99	99	99			
219	99	99	99	99			99	99		99	99	99			
220	99	99	99	99			99	99		99	99	99			
221	1	2	1	99			99	99		99	99	99			
222	99	99	99	99			99	99		99	99	99			
223	99	99	99	99			99	99		99	99	99			
224	99	99	99	99			99	99		99	99	99			
225	99	99	99	99			99	99		99	99	99			
226	99	99	99	99			99	99		99	99	99			
227	99	99	99	99			99	99		99	99	99			
228	99	99	99	99			99	99		99	99	99			
229	99	99	99	99			99	99		99	99	99			
230	99	99	99	99			99	99		99	99	99			
231	1	1	1	99			99	99		99	99	99			
232	4	3	3	1	12/12/12	07/10/13	1	3	07/29/13	2	1	2	11/11/13		
233	4	3	3	1	03/15/12		99	99		99	1	1	09/14/12		
234	4	3	3	99			4	3	09/15/12	1	2	99			
235	2	1	2	3	09/27/13		2	6	12/23/13	2	2	99			
236	2	2	2	99			99	99		99	99	99			
237	2	2	2	99			99	99		99	99	99			
238	99	99	99	99			99	99		99	99	99			
239	99	99	99	99			99	99		99	99	99			
240	2	2	2	99			5	6	08/26/08	1	2	99			
241	2	1	2	2	11/22/11		99	99		99	99	99			
242	4	3	2	3	07/16/10		99	99		99	99	99			
243	2	2	1	99			6	4	02/20/09	3	2	99			

Allo	DO allo	Post Allo	Outcome d	DO last F/up	STATUS AT	Cause	DO Death	ate for OS cal.	Event	DO event
1-Yes		1- CR	1- Alive		1- Dead	death		A- in remission	1- Yes	
2- No		2- PR	2- Dead			1- Relaps		at last f/up	2- No	
		3- NR			2- palliatio	2- Infect				
		4- PD			3- CR	3- both		B- Lost f/up		
		5- SD				4- IC bleed		status unknown		
					4- Lost f/up			NA-not treated		
					5- Other malig			at cmc		
99		99	99	12/05/11	4	99		NA	NA	
99		99	99	01/31/12	4	99		NA	NA	
99		99	99	03/12/12	4	99		NA	NA	
99		99	99	05/06/12	2	99		NA	NA	
2		99	99	02/13/13	2	99		03/13/13	1	01/23/13
99		99	99	02/09/13	1	2	02/09/13	02/09/13	1	02/09/13
99		99	99	11/04/12	1	2	11/04/12	11/04/12	1	11/04/12
99		99	99	06/25/12	2	99		07/25/12	1	07/25/12
99		99	99	05/11/12	2	99		06/11/12	1	05/11/12
99		99	99	04/24/14	2	99		05/24/12	1	03/06/12
99		99	99	04/15/14	3	99		A	2	
99		99	99	02/17/12	4	99		NA	NA	
99		99	99	12/04/12	4	99		NA	NA	
99		99	99	08/20/12	2	99		09/20/12	1	07/03/12
99		99	99	04/27/12	2	99		05/27/12	1	04/27/12
99		99	99	04/15/14	2	99		05/15/14	1	10/08/11
99		99	99	05/16/14	3	99		A	2	
99		99	99	01/08/13	4	99		NA	NA	
99		99	99	03/06/12	4	99		NA	NA	
99		99	99	03/01/11	4	99		NA	NA	
99		99	99	10/25/12	1	2	10/25/12	10/25/12	1	10/25/12
99		99	99	05/15/12	2	99		06/15/12	1	05/14/12
99		99	99	04/09/12	4	99		NA	NA	
99		99	99	07/08/12	2	99		08/08/12	1	08/08/12
99		99	99	03/13/12	4	99		B	2	
99		99	99	11/16/12	4	99		B	2	
99		99	99	07/05/12	2	99		07/06/12	2	07/06/12
99		99	99	02/19/13	2	99		03/19/13	1	03/19/13
99		99	99	11/19/10	4	99		NA	NA	
99		99	99	12/01/10	2	99		01/01/11	1	12/01/10
99		99	99	12/02/09	4	99		NA	NA	
99		99	99	08/13/09	3	99		B	2	
99		99	99	12/19/07	4	99		NA	NA	
99		99	99	06/01/09	2	99		07/01/09	1	06/01/09
99		99	99	05/05/11	1	2	05/05/11	05/05/11	1	05/05/11
99		99	99	07/22/11	4	99		NA	NA	
99		99	99	03/15/13	2	99		04/15/13	1	08/16/12
99		99	99	05/15/09	4	99		B	2	
99		99	99	07/29/07	1	2	07/29/07	07/29/2007	1	07/29/07
99		99	99	07/21/09	4	99		NA	NA	
99		99	99	06/11/10	4	99		NA	NA	
99		99	99	06/16/11	4	99		NA	NA	
99		99	99	03/16/12	2	99		04/16/12	1	10/28/11
99		99	99	06/24/14	3	99		A	2	
99		99	99	08/12/11	4	99		NA	NA	
99		99	99	10/18/11	2	99		B	2	
99		99	99	12/19/07	4	99		NA	NA	
99		99	99	05/26/09	4	99		B	2	
99		99	99	10/07/09	4	99		NA	NA	
99		99	99	09/13/11	4	99		NA	NA	
99		99	99	07/02/13	2	99		08/02/13	1	07/02/13
99		99	99	08/28/12	2	99		09/28/12	1	08/22/12
99		99	99	10/07/11	4	99		NA	NA	
99		99	99	10/20/12	2	99		11/20/12	2	02/10/12
99		99	99	12/21/12	4	99		NA	NA	
99		99	99	09/12/11	4	99		NA	NA	
99		99	99	04/10/12	4	99		05/10/12	1	04/10/12
99		99	99	06/13/08	4	99		07/13/08	1	02/01/08
99		99	99	10/28/10	4	99		B	2	
99		99	99	07/08/14	3	99		A	2	
99		99	99	01/25/11	4	99		NA	NA	
99		99	99	05/29/12	2	99		06/29/12	1	04/10/12
99		99	99	09/07/10	4	99		NA	NA	
99		99	99	03/25/08	3	99		B	2	
99		99	99	05/20/12	2	99		06/20/12	1	05/04/12
99		99	99	06/04/12	4	99		NA	NA	
99		99	99	06/26/12	4	99		NA	NA	
2		99	99	10/01/13	2	99		11/01/13	1	03/11/13
99		99	99	06/20/12	1	2	06/20/12	06/20/12	1	06/20/12
99		99	99	03/05/13	2	99		04/05/13	1	10/08/12
99		99	99	05/01/12	4	99		NA	NA	
99		99	99	03/23/12	4	99		NA	NA	
99		99	99	11/23/07	4	99		B	2	
99		99	99	07/04/14	3	99		A	2	
99		99	99	02/08/11	2	99		02/09/11	1	02/09/11
99		99	99	08/31/12	1	2	08/31/12	08/31/12	1	08/31/12
99		99	99	06/27/14	3	99		A	2	
99		99	99	05/02/14	3	99		A	1	
99		99	99	09/13/12	4	99		B	2	
99		99	99	09/21/12	4	99		NA	NA	
99		99	99	03/18/11	4	99		NA	NA	
99		99	99	08/13/13	3	99		A	2	
99		99	99	05/17/11	1	2	05/17/11	05/17/11	1	05/17/11
99		99	99	05/13/14	3	99		A	2	
99		99	99	10/07/13	3	99		A	2	
99		99	99	05/09/14	3	99		A	2	
99		99	99	09/26/14	3	99		A	2	
99		99	99	12/06/13	3	99		A	2	
99		99	99	11/18/14	3	99		A	2	
99		99	99	12/28/12	2	99		01/28/13	1	01/28/13
99		99	99	12/28/12	1	2	12/28/12	12/28/12	1	12/28/12

99		99	99	09/17/13	4	99		NA	NA	
99		99	99	04/29/13	2	99		05/29/13	1	04/23/13
99		99	99	10/20/12	4	99		NA	NA	
99		99	99	11/02/12	1	2	11/02/12	11/02/12	1	11/02/12
99		99	99	04/01/14	3	99		A	2	
99		99	99	03/07/14	3	99		A	2	
99		99	99	10/07/14	3	99		A	2	
99		99	99	08/05/14	3	99		A	2	
99		99	99	10/18/13	3	99		A	2	
99		99	99	11/14/14	5	99		A	1	08/03/10
99		99	99	04/06/13	2	99		05/06/13	1	05/16/13
99		99	99	02/19/10	2	99		03/19/10	1	02/19/10
99		99	99	08/20/10	4	99		B	2	
99		99	99	08/25/09	2	99		09/25/09	1	09/25/09
99		99	99	06/22/11	2	99		07/22/11	1	07/22/11
99		99	99	12/11/09	4	99		NA	NA	
99		99	99	01/19/10	4	99		NA	NA	
99		99	99	12/18/09	4	99		NA	NA	
99		99	99	12/17/09	4	99		NA	NA	
99		99	99	05/24/11	2	99		06/24/11	1	06/19/10
99		99	99	02/09/09	2	99		03/09/09	1	03/09/09
99		99	99	10/28/09	4	99		NA	NA	
99		99	99	01/22/10	4	99		NA	NA	
99		99	99	01/29/10	4	99		B	2	
99		99	99	09/01/11	4	99		NA	NA	
99		99	99	09/21/10	4	99		B	2	
99		99	99	05/31/10	1	2	05/31/10	05/31/10	1	05/31/10
99		99	99	06/11/10	4	99		NA	NA	
99		99	99	07/25/08	4	99		NA	NA	
99		99	99	09/02/08	2	99		09/03/08	1	09/02/08
99		99	99	09/24/08	2	99		10/24/08	1	10/24/08
99		99	99	10/10/08	4	99		NA	NA	
99		99	99	06/03/08	4	99		NA	NA	
99		99	99	08/01/08	4	99		B	2	
99		99	99	07/13/12	3	99		A	2	
99		99	99	07/29/08	4	99		NA	NA	
99		99	99	04/17/09	2	99		05/17/09	1	03/31/09
99		99	99	07/14/10	2	99		08/14/10	1	07/09/10
99		99	99	03/03/09	2	99		04/06/09	1	03/06/09
99		99	99	11/20/08	2	99		12/20/08	1	12/20/08
99		99	99	11/25/08	4	99		NA	NA	
99		99	99	10/28/08	2	99		11/28/08	1	11/28/08
99		99	99	02/24/09	4	99		NA	NA	
99		99	99	02/24/08	2	99		03/24/08	1	03/24/08
99		99	99	06/26/09	4	99		B	2	
99		99	99	07/10/09	2	99		08/10/09	1	07/10/09
99		99	99	07/26/11	3	99		A	2	
99		99	99	05/05/09	4	99		NA	NA	
99		99	99	06/02/09	4	99		NA	NA	
99		99	99	08/07/09	4	99		NA	NA	
99		99	99	04/09/10	2	99		05/09/10	1	11/10/09
99		99	99	04/09/10	2	99		05/09/10	1	01/27/10
99		99	99	06/29/10	4	99		NA	NA	
99		99	99	07/20/10	4	99		NA	NA	
99		99	99	06/03/10	4	99		NA	NA	
99		99	99	10/06/10	4	99		NA	NA	
99		99	99	11/15/10	4	99		NA	NA	
99		99	99	04/20/11	4	99		NA	NA	
99		99	99	05/17/11	4	99		NA	NA	
99		99	99	05/13/11	4	99		NA	NA	
99		99	99	05/18/11	4	99		NA	NA	
99		99	99	06/28/11	2	99		07/28/11	1	07/28/11
99		99	99	08/16/11	4	99		NA	NA	
99		99	99	04/24/07	4	99		NA	NA	
99		99	99	04/08/08	4	99		NA	NA	
99		99	99	08/06/12	1	3	08/06/12	08/06/12	1	08/06/12
99		99	99	09/18/07	2	99		09/18/07	1	09/03/07
99		99	99	06/25/07	2	99		07/25/07	1	07/25/07
99		99	99	07/07/09	3	99		A	2	
99		99	99	06/01/07	4	99		NA	NA	
99		99	99	01/22/08	2	99		02/22/08	1	01/16/08
99		99	99	11/06/12	3	99		A	2	
99		99	99	09/28/07	4	99		B	2	
99		99	99	08/14/07	2	99		09/14/07	1	08/14/07
99		99	99	07/07/07	4	99		NA	NA	
99		99	99	09/07/07	2	99		10/07/07	1	09/07/07
99		99	99	07/03/07	4	99		NA	NA	
99		99	99	08/04/07	1	2	08/04/07	08/04/07	1	08/04/07
99		99	99	07/06/12	3	99		A	2	
99		99	99	12/14/07	2	99		01/14/08	1	12/14/07
99		99	99	07/01/08	2	99		08/01/08	2	02/02/08
99		99	99	03/25/08	2	99		04/25/08	1	03/25/08
99		99	99	06/12/08	3	99		A	2	
99		99	99	01/15/10	3	99		A	2	
99		99	99	02/09/10	4	99		NA	NA	
99		99	99	08/07/09	1	2	08/07/09	08/07/09	1	04/01/09
99		99	99	12/14/08	4	99		B	2	
99		99	99	04/13/07	4	99		NA	NA	
99		99	99	10/10/12	1	2	10/10/12	10/10/12	1	10/10/12
99		99	99	04/05/12	4	99		NA	NA	
99		99	99	07/04/12	4	99		NA	NA	
99		99	99	03/02/08	4	99		NA	NA	
99		99	99	03/22/11	2	99		04/22/11	1	05/31/10
99		99	99	08/06/11	4	99		NA	NA	
99		99	99	09/16/08	4	99		NA	NA	
99		99	99	01/20/08	1	4	01/20/08	01/20/08	1	01/20/08
99		99	99	01/25/07	4	99		NA	NA	
99		99	99	03/29/09	4	99		NA	NA	
99		99	99	11/27/09	2	99		12/27/09	1	10/02/09
99		99	99	08/26/11	2	99		09/26/11	1	09/26/11
99		99	99	03/08/07	4	99		NA	NA	

99		99	99	09/27/09	3	99		A	2	
99		99	99	06/05/07	2	99		06/06/07	1	06/05/07
99		99	99	07/22/14	3	99		A	1	
99		99	99	10/07/09	1	2	10/07/09	10/07/09	1	08/24/09
99		99	99	08/31/11	2	99		09/30/11	1	06/03/11
99		99	99	09/10/10	4	99		B	2	
99		99	99	12/31/09	2	99		NA	NA	
99		99	99	03/10/10	4	99		NA	NA	
99		99	99	05/08/10	1	2	05/08/10	05/08/10	1	05/08/10
99		99	99	07/07/08	1	4	07/07/08	07/07/08	1	07/07/08
99		99	99	09/09/08	1	2	09/09/08	09/09/08	1	09/09/08
99		99	99	10/24/08	1	2	10/24/08	10/24/08	1	10/24/08
99		99	99	01/30/09	1	2	01/30/10	01/30/10	1	01/30/10
99		99	99	11/17/08	1	2	11/17/08	11/17/08	1	11/17/08
99		99	99	01/17/09	4	99		B	2	
99		99	99	01/29/09	4	99		NA	NA	
99		99	99	03/11/09	4	99		NA	NA	
99		99	99	09/27/10	1	2	09/27/10	09/27/10	1	09/27/10
99		99	99	08/10/14	4	99		NA	NA	
99		99	99	07/20/09	4	99		NA	NA	
99		99	99	06/12/09	2	99		07/12/09	1	07/12/09
99		99	99	05/01/09	1	2	05/01/09	05/01/09	1	05/01/09
99		99	99	05/04/09	2	99		06/04/09	1	06/04/09
99		99	99	04/20/09	4	99		NA	NA	
99		99	99	03/20/09	4	99		NA	NA	
99		99	99	11/08/10	1	2	11/08/10	11/08/10	1	11/08/10
99		99	99	04/11/11	4	99		NA	NA	
99		99	99	06/24/07	4	99		NA	NA	
99		99	99	09/26/07	1	2	09/26/07	09/26/07	1	09/26/07
99		99	99	09/23/08	1	2	09/23/07	09/23/07	1	09/23/07
99		99	99	03/18/11	4	99		NA	NA	
99		99	99	05/17/11	4	99		NA	NA	
99		99	99	06/02/11	1	2	06/02/11	06/02/11	1	06/02/11
99		99	99	05/17/10	4	99		NA	NA	
99		99	99	03/16/10	4	99		NA	NA	
99		99	99	01/23/10	4	99		NA	NA	
99		99	99	03/09/10	4	99		NA	NA	
99		99	99	06/03/12	1	2	06/03/12	06/03/12	1	06/03/12
99		99	99	08/13/09	1	2	08/13/09	08/13/09	1	08/13/09
99		99	99	03/06/14	4	99		A	1	07/10/13
99		99	99	05/19/14	3	99		A	2	
1	01/23/13	1	1	05/30/13	3	99		A	1	09/15/12
1	07/05/14	99	2	08/20/14	1	2	08/20/14	08/20/14	1	09/27/13
99		99	99	03/16/09	2	99		04/16/09	1	03/16/09
99		99	99	09/28/07	4	99		B	2	
99		99	99	10/09/08	4	99		NA	NA	
99		99	99	08/19/08	4	99		NA	NA	
99		99	99	04/06/11	3	99		A	1	08/26/08
99		99	1	01/31/12	2	99		03/02/12	1	11/22/11
99		99	99	08/09/10	2	99		09/09/10	1	07/16/10
99		99	99	01/23/11	1	2	01/23/11	01/23/11	1	02/20/09